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CONGENITAL HYPERTROPHIC PYLORIC STENOSIS*

BY W. E. LADD, M.D., F.A.C.S.

CONGENITAL pyloric stenosis was first described in the Transactions of the New Haven Medical Society in 1787 by Dr. Hesekiah Beardsley. In the somewhat picturesque English of the day, he gave a good description of the symptoms of an infant suffering from pyloric stenosis, and he also described the gross pathology as found at post mortem examination. Particular emphasis was laid on the narrowness of the lumen and the scirrhous condition of the pyloric tumor. From that time until the latter part of the next century this condition seems to have been almost entirely overlooked. In the last decade of the nineteenth century, more careful post mortem examinations were made and it was found that the stenosis of the pylorus was caused by an increase in the circular muscle layer and connective tissue of the pyloric sphincter, and a redundancy of the mucous membrane. Wolbach and Dent clearly established the fact that this condition is congenital in origin, by finding it in the foetus. The increase in the circular muscle layer of the pyloric ring forms a hard tumor the size of a small olive and of very much the same consistency to the touch. Associated with the stenosis there is usually a dilatation of the stomach and an hypertrophy of the stomach wall, which is presumably secondary to the partial obstruction.

In a series of 197 cases taken from the Children's Hospital and my private practice, there is an 80 per cent predominance of the male. The symptoms of this disease begin commonly in the third week of life and show considerable uniformity in character. The first symptom to attract attention is vomiting of projectile character which usually occurs during nursing or very shortly afterwards. The vomitus contains only the milk which has been ingested and never any bile. It may be large in amount, there being a residue, often, of feedings taken previously. The stools become small in amount, dark in color and have a faint musty odor. They show little or no food elements and are composed of mucus, bile and the secretions of the intestine. Such stools are commonly termed starvation stools. The child shows a rapid loss in weight and soon becomes markedly dehydrated. On physical examination, large peristaltic waves may be seen over the gastric area running from left to right, except just before vomiting when they become reversed. In the vast majority of cases a tumor can be felt just above the umbilicus and to the right of it. There is a marked discrepancy of opinion among various authors as to the percentage of cases in which the tumor can be felt and as to its significance. Bolling states that it is palpable in every case and considers it the most important sign. On the other hand, Strauss states that he has felt it in only 25 per cent of his cases and attaches no great significance to it. It is unquestionably true that the tumor can often be felt if a painstaking examination is made at the proper moment, whereas it may be missed in a hurried examination. The proper moment to feel the tumor is when the infant is relaxed and the stomach is emptied, either by the act of vomiting on the part of the infant, or emptied by passing a catheter into the stomach. In my own experience I find that the tumor is palpable in the great majority of cases but not in every case. I believe it to be an important but not an essential factor for making a diagnosis. Bolling's observation that he can feel the pyloric muscle contract through the abdominal wall, implies a degree of skill in palpation that I have been unable to attain. Perhaps it may be a mistaken deduction from the fact that he is able to feel the tumor better at one time than at another. The fact that it can be felt more easily at one moment than at another, I believe to be due to its position or to such conditions as relaxation of the abdominal muscles and the amount of distention of the stomach.

The question of confirming the diagnosis by X-ray is one that is frequently discussed. Strauss is a firm believer in the value of this examination and treats his cases medically or surgically, according to the X-ray findings. He defers operation if 80 per cent of a barium meal passes through the stomach in four hours, and resorts to operation only when not more than 50 per cent passes through in that time. In the earlier cases at the Children's Hospital, X-rays were taken in most of the cases but in recent years we have usually omitted this step for two reasons; first, because we think it is unnecessary, and second, that the early post-operative feedings are less apt to be retained. In border line cases, however, we still sometimes resort to the X-ray and place some reliance on the picture of the blunt, rounded pyloric end of the stomach, as well as on the amount of barium passing out of it.

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*Read before the New England Surgical Society, October 2, 1926.

The only two conditions with which pyloric stenosis are likely to be confused are the cases of mild degrees of stenosis or spasm and the duodenal atresias. Duodenal atresia may be partial or complete. It may be caused by congenital bands or by epithelial concrescence within the lumen. The atresias are rare but still occur frequently enough to make the bearing of this condition in mind important. If an infant begins vomiting in the first days of life or if the vomitus contains bile he is probably suffering from an atresia and not from pyloric stenosis.

In patients with all of the typical signs and symptoms of pyloric stenosis, that is, projectile vomiting, visible peristalsis, palpable tumor, loss of weight and emaciation, and scanty stools, there seems to me to be no argument as to the advisability of prompt surgical intervention. We do see however, every year, a few cases that are on the border line, in whom the symptoms are mild, and in these the decision whether or not to operate is sometimes difficult to make. My own feelings about such cases is that no single finding should determine the form of treatment. I do not feel, for instance, that in every case in which the tumor is palpable, that operation should necessarily be performed. In these cases operation should be resorted to only when the infant has failed to gain promptly on medical treatment.

There is considerable divergence of opinion as to what the best medical treatment is. Haas believes that pyloric stenosis is due to a hypertonicity of the pyloric muscle and that atropine is a specific cure. He believes that operation is almost never necessary and reports in 1922, thirty eight out of forty cases cured by treatment with atropine. Davison on the contrary, states that the effects of atropine do not appear to be strikingly beneficial in cases of true pyloric stenosis. He places reliance on the refeeding of breast milk when vomiting occurs and on prolonged hospital care. The disadvantages of prolonged hospital care are great. Hospitalization of the patient and intercurrent infections are very likely to occur. All advocates of medical treatment admit that the treatment is prolonged, sometimes being continued throughout the better part of the first year. Thick feedings of cereal in conjunction with atropine, also has its advocates. Downes in 1917, published the medical mortality as 50 per cent. The majority of the best pediatricians in this country fail to get the good results reported by Haas and consider that surgical treatment is not only safer but yields a quicker and more certain cure.

Some years ago, emergency operations were performed on patients with pyloric stenosis, who were in a badly dehydrated condition. Very little was done in the line of pre-operative care. I feel sure that the lack of attention to this was responsible for some of the deaths in our earlier cases. We now spend from one to three days in preparing infants who are poor operative risks. The treatment consists of hypodermoclysis, glucose by rectum or intravenously and occasionally, transfusions. The beneficial effect of transfusion is great and we probably should resort to it much more often than we have in the past. It is logical to assume that at least a part of Strauss' excellent results are due to the frequency with which he employs this therapeutic measure.

Before the operation of pylorotomy became universally adopted, there were a considerable number of cases successfully treated by posterior gastro-enterostomy, and in the hands of a few exceptionally capable surgeons like Scudder and Richter, the results were satisfactory and the mortality low. In most clinics, however, the mortality remained high. For this reason and because gastro-enterostomy did not restore the normal condition as well as pylorotomy, it has been entirely abandoned. The present operation of pyloroplasty or partial pylorotomy, commonly termed the Fredet-Rammstedt or Rammstedt operation, is the result of a process of evolution. Various types of operation were devised by many surgeons in an attempt to overcome the obstruction at the pylorus and to permit normal alimentation of the patient. Among the first procedures recommended was divulsion of the pylorus. This was practiced by Loreta who divulsed the pylorus through a gastrostomy. The operation was soon abandoned due to its obvious disadvantages of trauma, oedema of the mucous membrane, hemorrhage and possible contamination of the peritoneum. The next operations were the pyloroplasties. One with a complete pylorotomy was recommended by Heincke-Mikulicz. This had the disadvantage of being very difficult to perform on account of the thickness and hardness of the pyloric ring. However, several cases were cured by this method. A "V" shaped partial pyloroplasty was then performed by Nicoll. Then the simpler, straight incision down to, but not through the mucous membrane, was practiced by Fredet. We are really most indebted for our present operation to Fredet's recognition of the true pathological condition; that is, not only the hypertrophy of the pyloric muscle, but the redundancy of the mucous membrane within it. His operation was devised to enlarge the pyloric ring and to free the mucous membrane sufficiently so that it would not continue to block the outlet of the stomach, and on this detail is dependent today the adequacy or inadequacy of the operation. A year after Fredet's paper was published, Rammstedt reported two cases in which he performed almost identical operations, except that in the first he covered over the raw surface with a bit of omentum. In the second case he considered this unnecessary as we do today. If the operation is to be known by the name of a surgeon from the point of view of priority, it should be called the Fredet operation.

With increased experience, there are a certain number of details in connection with this operation which we believe to be important. Ether is the anesthetic of choice. There may be an occasional case in which local anesthesia is desirable, but it is apt to prolong the operation, cause more trauma and occasionally delay the union of the wound. It is very important to keep these emaciated infants warm during the operation. To accomplish this we place the infant on a hot water bag and wrap the extremities in flannel. A catheter is introduced into the stomach as a routine procedure for the purpose of facilitating the anesthesia as well as the operation. The abdominal incision is made through the right rectus muscle, so placed that the lower border of the liver appears in the middle of the incision. The pylorus is delivered into the wound and held between the thumb and fingers of the left hand and rotated somewhat so that the area with the least blood supply is brought uppermost. The incision in the pylorus is now made in its longitudinal axis, through the serous and the muscular coats, down to the mucosa. Great care must be taken to avoid cutting through the mucous membrane at the duodenal end of the incision, as the pyloric muscle thins abruptly at this point. At the gastric end the muscular layer thins much more gradually. The incision in the pylorus is spread and the mucous membrane freed sufficiently to allow it to pout through the wound above the serous level. This insures an adequate lumen. It is very rare that an appreciable hemorrhage occurs. If it does, it is best controlled by a silk stitch tied over a fragment of muscle removed from the right rectus. By this detail of technique we have avoided any fatality from hemorrhage. The abdominal wound is carefully closed in layers. A few cases of post-operative evisceration have been reported where the abdominal wound was not closed with sufficient care.

While the patient is still on the operating table, two or three ounces of five per cent glucose solution are given by rectum. An ounce of boiled water is given by mouth one hour after operation. Two hours after operation, an ounce of whey is given by mouth. This feeding is continued every two hours for the first twelve hours and hypodermoclysis and glucose by rectum is repeated if the infant is badly dehydrated. At the end of twelve hours, a feeding consisting of one half ounce of breast milk and one half ounce of whey is given every two hours for the next twelve hours. The food value of the feedings is then increased by replacing a dram of whey with a dram of breast milk at each feeding and continuing to increase the breast milk until the caloric requirement is reached. During this process the intervals of feeding are lengthened up to three hours. It is always wise to continue the breast milk feedings as long as possible. It is very important to continue them for at least ten days after operation. No substitute feeding has yet been devised which is as good as breast milk. Many of these patients progress perfectly normally on artificial feeding after they have gotten a good start. Our routine of post-operative feedings gives more food sooner after the operation than is practiced in other clinics. This seems desirable as long as gastro-intestinal disturbances are avoided. In cases where breast milk is not obtainable, it is my practice to get aid from the best pediatrician available.

A number of patients have been looked up from five to ten years after operation and no untoward symptoms or abnormal developments have been noted.

The most common cause of death in our clinic has been from collapse or inanition. In six cases death occurred within thirty six hours after operation. These infants were the most dehydrated and those in whom operation had been long delayed. In one case, sudden death occurred after five days of satisfactory progress. It was thought but not proved that death was due to pulmonary embolus. Pyelitis as a complication was responsible for the death of one patient, while another died from an inadequate operation. There was one death from a combination of broncho pneumonia, pericarditis, pneumococcous peritonitis, otitis media and empyema. Autopsy report stated that the peritonitis was believed to be secondary to the general pneumococcus infection, rather than from the operative procedure. We have no death reported from hemorrhage as far as is known and no patient has died as the result of the opening of the duodenum in the course of operation. This has been done once during the series but the opening was promptly closed and there was no interference with convalescence. This gives eleven deaths in 197 cases, which is a mortality of 5½ per cent. The mortality is not as high in private practice. Among thirty-five patients on whom I have operated in my private practice, only one death occurred. This case was an infant over five months old who weighed under five pounds. It was one of the earlier cases before I appreciated the value of pre-operative preparation. The last twenty-nine cases have been without mortality.

In conclusion it is fair to state that the diagnosis of pyloric stenosis is usually easily made; that the treatment should be surgical on all except those with the milder type of the disease; that prolonged or unsuitable medical treatment, before the infant is sent to the hospital, is still in our clinic the most common cause of mortality; that the surgical operation of choice is pyloroplasty because of its resulting low mortality and ease of performance. Mortality from surgical accidents has been almost negligible in our clinic. The decrease in mortality is due to earlier operation and more thorough and careful pre and post operative care. The cure is permanent. The operation may be classed as one of the most gratifying in the field of surgery.

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DISCUSSION

DR. WALTER C. SEELYE, Worcester: I have been intensely interested in Dr. Ladd's paper. My experience in this line has been limited, having had only four cases myself which I have kept track of, and they have all done well.

I was interested to note that Dr. Ladd said that X-ray didn't seem to be necessary in all cases, whereas I have always felt that that formed an important part of our pre-operative conception of the case.

I also want to ask Dr. Ladd—in those cases that are X-rayed what evidence is there of increased nausea resulting from the X-ray.

Regarding anesthesia, I was sorry that we didn't hear the whole of Dr. Ladd's paper which might have brought out what I want to ask—whether all his cases were done under ether anesthesia. Three of my four cases I did under local anesthesia and one under ether. I feel that in case of a poor risk local anesthesia does add to the safety of the case, and unless the baby is an especially obstreperous one, I prefer that method.

DR. J. S. STONE, Boston: I assent to everything Dr. Ladd has said. One or two points I want to emphasize. In the first place it is often difficult to distinguish between spasm and true stenosis. We should regard as probably spasm any case where the symptoms begin after the age of six or eight weeks. The preponderance of true stenosis among males is so great that we must regard with suspicion any supposed stenosis among females. We must also regard with suspicion a case in which there is any infection such as pyelitis, or umbilical infection.

The X-ray is of value in diagnosis but from observation of the visible peristalsis, of the tumor and of the volume of feces one can get all the information the X-ray gives except the rapidity with which food passes out of the stomach.

There is a perfectly definite objection to giving barium shortly before operation. A stomach full of barium is very difficult to deliver; the peritoneum covering it may be torn. Regurgitated barium may choke the patient.

I want to emphasize that the time for feeling the tumor is immediately after the child has vomited, in that brief period of half a minute of complete muscular relaxation.

It may seem absurd to mention technical details, but the exact location of the incision is important. The mesentery of the pylorus is very short. The land-mark is the liver. The incision should be made through the middle of the right rectus half above and half below the liver edge. If a rectractor pulls up the edge of the liver, the pyloric end of the stomach is exposed and can be lifted out with the greatest ease; but if the incision is improperly made delivery of the pylorus may be difficult and often dangerous.

The utmost care is necessary too in closing the wound in the abdominal wall. The danger of the edges parting before union is solid is very real.

Care is necessary in the after-feeding. Children may run high temperatures and even have convulsions from overfeeding too soon after the operation. The feeding must not be overdone at first.

DR. DAVID W. PARKER, Manchester, N. H. I think it might be worth while at this time to report a series of three cases of Pyloric Stenosis which occurred in one family. These children were treated at the Balch Hospital, Manchester, N. H.

There have been four children in this family. The first child was normal. The next child, and the first of our series, began to vomit at five weeks, vomiting was projectile in character and without remissions; there was also progressive loss of weight. The vomiting was not influenced by gruel feedings or medication. Peristaltic waves were present and a tumor mass was demonstrated. The child was operated by Dr. J. C. O'Connor and a tumor mass, putty-like in consistency which crumbled on being incised, was found.

The next child was seven weeks old when operated. It had the following history: "Full term. Normal delivery. Birth weight, 8 pounds, 4 ounces. Has vomited since birth. Stools always greenish. Always breast fed. Vomiting rarely projectile." The child had been intelligently treated at the city out-patient clinic without results. At time of entrance at the Balch Hospital the weight was 11 pounds, 8 ounces. It had persistent vomiting, projectile in character. Also green stools. There were marked peristaltic waves across the epigastrium and a question of a tumor. Although the child had not lost weight we felt that we had to deal with a Pyloric Stenosis, and based our diagnosis on the continuous vomiting gradually getting more persistent and uncontrolled by intelligent medical treatment the marked peristaltic waves

true pyloric cases is particularly clean cut and definite. They do begin at a certain time, that is, from ten days to five weeks after birth and they do not have remissions of vomiting. After they once start to vomit they keep it up persistently. If there are remissions we look upon them as spasms and investigate pretty thoroughly before operating.

This is illustrated by a case. A child, full term, normal delivery, two days old, began to vomit. Vomiting was projectile in character, very prominent peristaltic waves were present, and there was apparently nothing going through the pylorus. X-rays by Dr. A. S. Merrill showed no passage of barium through pylorus in four hours. There was a question whether or not we felt a small tumor mass.

This case was an atypical one in that the vomiting started so soon after birth, but in view of the fact that no barium passed through the pylorus in four hours, it seemed justifiable to assume that there might be some pyloric obstruction. Operation was performed and nothing abnormal found. This goes to show that too much importance cannot be attached to X-ray findings in these cases. After operation the vomiting gradually decreased, and the child was soon put on normal feedings.

Another case: A baby, two and one-half months old, had been vomiting persistently, but had had remissions. Everything was vomited. The vomiting was projectile, and distinct peristaltic waves were present. Also a cord-like tumor was felt in the region of the pylorus. On account of the history of remissions operation was not performed. The child was fed thick, cereal gruels, and got well.

Atropine has been tried on these stenosis and spasm cases with absolutely no results whatever. We have usually been able to feel the pyloric tumor by jack-knifing the child immediately after the vomiting period.

I was very much interested in this paper, and and I think it is something we can take home with us and profit by.

Dr. John W. Keefe, Providence: For many ears I have been interested in this operation or pyloric stenosis. I was called upon some wenty years ago now to see a patient with a octor Mitchell; and this child had a typical istory such as Dr. Ladd has outlined, and I rankly admitted I knew very little about pyric stenosis at the time, so I planned an operaion to attack the disease at its source. So I ade an incision through the pyloric muscle. t one period it was thought that this muscle as a cartilage it was so hard. A noted anatmist of England, Cunningham, was the first to ow it was a muscular structure and not cartage in this hard pyloric muscle. After I had ade the incision and was going to close the ound in the opposite direction after taking out a wedge shaped piece, it occurred to me to open the stomach, which I did, and passed a sound through the pyloric opening. This patient made a good recovery. Later on I concluded it wasn't well to make this opening in the stomach but only necessary to incise this hard cartilaginous mass at the site of the disease.

A few years after this I came to Boston and recall Dr. Charles Mixter reading a paper on this subject, and I recently had operated on a patient Dr. Morse had seen but I was told that my operation wouldn't be of any value and that I should have done a gastrojejunostomy which they had done at the Massachusetts General Hospital; but this patient recovered. There is no hocus pocus about the operation—it is one that any surgeon can do.

I don't think it is necessary to give a general anesthetic or to use X-rays. I think we can make an incision with local anesthesia. I was trying to think of a noted English surgeon who was one of the pioneers of pylorotomy who had made a reputation on this operation.

DIRECTORY OF 1927

Typographical Errors

Page 42. Cushman, Andrew Bernard, should be: **South Dartmouth, (Dartmouth); Cushman,** Ella Wylie, Boston, 464 Commonwealth Ave.; Cushing, Hayward Warren, Boston, 70 Commonwealth Ave.

Correction to be pasted in the 1927 Directory of the Massachusetts Medical Society, page 42.

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At operation was found: "Pylorus markedly thickened, olive shaped, hard and grissly. Stomach distended with gas." Following operation the vomiting ceased, and five days later the stools became yellow and normal. Child made uninterrupted convalescence and has been perfectly well since.

The third case occurred this last summer. The baby was five weeks old. The symptoms had been going on for three weeks. The child was badly dehydrated and emaciated. Practically nothing was going through the pylorus. At operation a typical olive shaped tumor was found.

I hesitate to advance any conclusions from the small series we have had at our hospital, but we have been led to believe that the history of these true pyloric cases is particularly clean cut and definite. They do begin at a certain time, that is, from ten days to five weeks after birth and they do not have remissions of vomiting. After they once start to vomit they keep it up persistently. If there are remissions we look upon them as spasms and investigate pretty thoroughly before operating.

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Dr. John W. Keefe, Providence: For many years I have been interested in this operation for pyloric stenosis. I was called upon some twenty years ago now to see a patient with a Doctor Mitchell; and this child had a typical history such as Dr. Ladd has outlined, and I frankly admitted I knew very little about pyloric stenosis at the time, so I planned an operation to attack the disease at its source. So I made an incision through the pyloric muscle. At one period it was thought that this muscle was a cartilage it was so hard. A noted anatomist of England, Cunningham, was the first to show it was a muscular structure and not cartilage in this hard pyloric muscle. After I had made the incision and was going to close the wound in the opposite direction after taking out a wedge shaped piece, it occurred to me to open the stomach, which I did, and passed a sound through the pyloric opening. This patient made a good recovery. Later on I concluded it wasn't well to make this opening in the stomach but only necessary to incise this hard cartilaginous mass at the site of the disease.

A few years after this I came to Boston and recall Dr. Charles Mixter reading a paper on this subject, and I recently had operated on a patient Dr. Morse had seen but I was told that my operation wouldn't be of any value and that I should have done a gastrojejunostomy which they had done at the Massachusetts General Hospital; but this patient recovered. There is no hocus pocus about the operation—it is one that any surgeon can do.

I don't think it is necessary to give a general anesthetic or to use X-rays. I think we can make an incision with local anesthesia. I was trying to think of a noted English surgeon who was one of the pioneers of pylorotomy who had made a reputation on this operation.

and he said, "Do you know the first case I operated upon I cut through the mucous membrane and I thought I had made a very bad operation and that the patient would die, but the patient lived." This simple operation has come to be accepted throughout this country.

Dr. Daniel F. Jones, Boston: I want to call your attention to one symptom, and that is that these patients do not vomit bile stained material. I call your attention to this because a pediatrician made a diagnosis of pyloric stenosis on a case which had projectile vomiting of bile stained fluid.

Dr. W. E. Ladd, Boston (closing): I will first speak about the postoperative vomiting after the use of bismuth or barium. The bismuth or barium clings to the wall of the pylorus and is apt to plug the outlet, and I think the convalescence isn't so quick if the patient has had a barium meal before operation.

On the question of the anesthetic we have not used local anesthesia much, and our objection to it is that it is sometimes difficult to keep these patients still, and in a few instances the operation has been prolonged by the use of a local anesthetic, but that may not necessarily happen. Also on the markedly dehydrated patients where there is no layer of subcutaneous fat following the injection of novocaine the wound isn't quite so certain of primary union.

I want to thank Dr. Stone for bringing out some of the operative details which I skipped. And I would like to mention also the question of opening the pylorus at the duodenal end. The pyloric muscle thins very abruptly at the duodenal end and at that point the greatest care must be taken.

With Dr. Parker's case that was over weight I think very likely he was right in operating on that patient, but I think I should have postponed operation until the patient has stopped gaining weight, in other words, the operation is performed in order to allow the child to get its food, and I don't quite see the point for doing the operation until the child stops getting its food.

Dr. J. S. Stone, Boston: I think Dr. Ladd would like to remark that we have the mothers so trained that they bring in the babies with the diagnosis made.

ORIGINAL ARTICLES

QUINIDIN SULPHATE IN AURICULAR FIBRILLATION*

BY NATHAN SIDEL, M.D., AND FREDERICK G. DORWART, M.D.

This report on the treatment of auricular fibrillation with quinidin is presented primarily to demonstrate the desirability of giving larger dosages of the drug than are usually administered. Our series consists of twenty cases which include one patient with ventricular fibrillation and a boy of ten showing auricular fibrillation.

Since 1918, when Frey published his report on the action of quinidin, the literature has contained many accounts on the use of the drug. Able observers are found advocating and still others criticizing the use of quinidin. It is practically the unanimous opinion, however, that quinidin certainly should not supplant digitalis but may at times be used as a supplement to digitalis in auricular fibrillation.

On reviewing the literature of quinidin therapy the small doses advocated are impressive. Practically all reports mention doses which are very small compared to the amounts given to most of our patients. The general feeling is that cerebral accidents and severe toxicity would occur with large doses. Because of this prevailing opinion this report may be of some value.

TYPES OF CASES

Twenty unselected cases of auricular fibrillation admitted to the Medical Service of the Boston City Hospital comprise the series. Practically all the patients were admitted because of varying degrees of heart failure as described in the case reports.

The ages ranged from ten to eighty-three. Only three were younger than forty. The majority were between forty and fifty-five.

All were chronic established fibrillators. Rheumatic heart disease (mitral stenosis) in seven (35%) and arteriosclerotic myocarditis in thirteen (65%) were the underlying conditions.

Unfortunately the duration of the fibrillation could not be ascertained satisfactorily but the length of the cardiac history was obtained and is shown in Table I. Of the twenty cases, only one (Case No. 18) did not have heart failure on admission; two (Cases No. 13 and No. 15) had a mild degree of heart failure; the remaining seventeen had moderately severe or very severe heart failure. Case No. 4 also had definite signs and symptoms of uremia—both conditions occurring one week after the repair of an umbilical hernia.

Recently Smith and Clarke[1] reported sixty one percent success in the production of normal rhythm from auricular fibrillation by a one day plan of quinidin administration. Their cases were different from our group as they say "in no case was the drug given when well marked chronic passive congestion had recently been present." It is interesting to note as stated above that practically all our cases had very recent severe heart failure.

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*From the First Medical Service of the Boston City Hospital.

REGIME OF THERAPY

The quinidin sulphate was dispensed in gelatin capsules and administered by mouth. The product used was manufactured by Merck and Company of New York.

The dosages recommended by White and Sprague[2] served as the basis of our treatment. Except in Case No. 20 quinidin was not given until the patient became compensated with rest, morphia, digitalis, purgatives, etc. The following was the general plan with slight variations in every case:—

Test doses of 3 grains (0.2 grams) were given twice with a four hour interval. If no signs of idiosyncrasy developed, 6 grains (0.4 grams) five times daily were started the following day at intervals of three hours between 9 a.m. and 9 p.m. If fibrillation persisted after three to five days on this routine, the dosage was gradually increased. At first 10 grains (0.66 grams) t.i.d. were given for one day, then 4 i.d. for two days. If fibrillation continued 10 grains (0.66 grams) 5 i.d. were given for two days and finally 15 grains (1.0 grams) to 40 grains (2.66 grams) 5 i.d.

Except in two patients (No. 4 and No. 6) quinidin was omitted after two weeks if regular rhythm did not occur. When normal rhythm was restored the dose was reduced to 3 grains (0.2 grams) or 6 grains (0.4 grams) twice daily. In most cases the drug was finally omitted and the regular rhythm continued.

TOTAL DOSAGE

Korns[3] in a series of thirty-six patients reported the largest daily dosage to be 50 grains (3.33 grams). His largest total dosage over a period of twenty days was 545 grains (36.3 grams).

Viko, Marvin and White[4] used doses up to 12 grains (0.8 grams) five times daily.

Van Nuys[5] reported a case of auricular fibrillation which was made regular with 66 grains (4.4 grams) of quinidin and was kept on 24 grains (1.6 grams) daily for seventy-two days. At first dizziness and later slight deafness bothered the patient. Both symptoms ceased spontaneously, without the dosage being lessened.

In our series, thirteen (65%) became regular. Of these, four became regular within thirty-six hours with a total dosage of 30 grains (2.0 grams) or less. The remaining nine became regular in five to eleven days. In this latter group the highest daily dosage was 20 grains (1.33 grams) six times; the highest single dose was 25 grains (1.66 grams); the highest totals were 356 grains (23.6 grams) in Case No. 3 and 920 grains (61.3 grams) in Case No. 6.

In an attempt to demonstrate subjective symptoms, fairly large doses of the drug were continued in a number of cases. Thus Cases No. 15 and No. 17 received 200 grains (13.3 grams) a day; the latter patient was given 45 grains (3.0 grams) three times on the last day of the course. This patient received 1041 grains (69.4 grams) in ten consecutive days.

The patient who received the highest total dosage was Case No. 6. He was given 3381 grains (225.4 grams) over a period of two months; the last month of this period he was receiving 15 grains (1.0 grams) five times daily. The quinidin was finally discontinued because of moderate tinnitus but regular rhythm contiued until his next entry into the hospital.

Weiss[6] states that as high as 80% of the fatal dose of quinidin can be administered to cats and dogs with complete destruction and excretion in five hours. This may explain why our large divided doses were possible.

Cohn and Levy[7] have shown that dogs are not affected uniformly by the drug. The same phenomenon existed in this series. Thus one patient became regular with 8 grains (0.5 grams) while another required 920 grains (61.3 grams). This variation in dosage is very interesting but at present remains unexplained.

CLINICAL RESULTS WITH REGULAR RHYTHM

In three patients (No. 6, No. 7, No. 10) there was distinct improvement subjectively and objectively with the onset and continuance of regular rhythm. The remaining eleven of the thirteen who became regular continued the improvement which began with digitalis.

The longest known period of regular rhythm was eight months (Case No. 1). In four cases it was six months; the remainder varied from one to four months. Unfortunately several of the patients moved from this city and a few were not very co-operative as to follow-up visits.

In none of the cases was there a reversion to irregular rhythm during the period the patients were followed. Case No. 3 withstood the strain of an abdominal operation two months after leaving the hospital, without any effect on the regular rhythm.

REGULAR RHYTHM

Thirteen (65%) of the twenty cases reverted to regular rhythm under quinidin therapy.

This result is slightly better than the statistics published by Burwell and Dieuaide[8]. They collected from the literature six hundred and six cases of auricular fibrillation treated with quinidin. Of this group three hundred and thirty-nine (55.9%) reverted to regular rhythm.

It is interesting to note that of the thirteen regular rhythm cases, nine (70%) had a cardiac history of one year or less, two (15%) had symptoms for two years, 1 (7.5%) for three years, and one (7.5%) for four years.

All the cases that failed to revert to regular rhythm had a cardiac history of three to nine years. It appears therefore that quinidin can be used with greater chances of success in patients with cardiac histories of two years or less.

In each case frequent electrocardiograms determined definitely whether regular or irregular rhythm existed.

TOXIC EFFECTS

Of the twenty cases, five experienced nausea and two of the five vomited, while one of the five had moderate tinnitus.

There was one death in our series. Case No. 20 developed ventricular fibrillation and exit occurred. This patient as stated in the case history was a very severe cardiac who did not become compensated under intensive treatment. It was suggested that quinidin be tried. Electrocardiograms shown in this article demonstrate ventricular fibrillation.

Embolic accidents during quinidin therapy have been reported in the literature. In none of our cases were there embolic features. During the investigation three patients with auricular fibrillation were admitted to our service because of hemiplegia due to cerebral emboli. Of these three, two had not received any therapy while one had been taking digitalis. Also on the service, one case while under digitalis only, had a death clinically similar to that of the ventricular fibrillation case herein reported.

DISCUSSION

The use of quinidin recalls the history of digitalis. In spite of the introduction of Foxglove by Withering in 1785, it was practically abandoned for one hundred years. Pratt[9] says that "Sir James MacKenzie, working over a hundred years later, was the first clinician to demonstrate conclusively the correctness of Withering's instructions regarding the administration of digitalis."

Only within recent years has it been shown that large doses of digitalis can be given. Patients who do not show results with small doses have been tremendously improved with large doses. Because large amounts can be given when indicated, they are not necessarily given routinely.

Similarly with quinidin, probably a great number of patients have not benefited from this drug in the past because large enough doses were not given. We feel, therefore, that under careful supervision large divided doses of quinidin as used in our series can be given in cases when small doses are ineffective.

In all our cases the small doses recommended in the literature were tried. As stated in the case histories the dosage was increased gradually if regular rhythm did not result. It is rather significant that of the thirteen cases that reverted to normal rhythm, seven (54%) required a daily dosage of 75 grains (5.0 grams) or more before regularity occurred. (v. Table IV.)

With the exception of Case No. 20, every compensated case of auricular fibrillation on our service over a certain period was tried on quinidin. We did not select our cases. There were so many conflicting reports in the literature it was deemed advisable to attempt regular rhythm on all compensated fibrillators. Quinidin was not regarded as a drug for treating symptoms of heart failure, but merely as a drug for altering an abnormal rhythm. It was not looked upon as a substitute for digitalis but rather as a supplement to that drug.

In the attempts to produce regular rhythm and toxic symptoms we found that comparatively huge doses of quinidin could be given with impunity. However, we strongly insist that such doses are not recommended routinely. They can be tried if indicated under careful hospital supervision.

Some patients are comfortable and can work with an irregular irregularity but many are better with a regular rhythm. The latter results in (a) a more efficient circulation and (b) eliminates the psychological depression of an irregular palpitation.

Blumgart and Weiss[10] have shown that the circulation time in patients with auricular fibrillation after digitalization is distinctly longer than when regular rhythm was present in the same patients after quinidin therapy. This is fairly tangible proof that regular rhythm is more efficient than auricular fibrillation. Regular rhythm therefore ought to be attempted unless contraindicated by decompensation because of the chance of improvement.

CONCLUSIONS

1. Much larger doses of quinidin than are usually given can be administered under proper care.

2. In a series of twenty unselected cases of auricular fibrillation, quinidin sulphate produced regular rhythm in thirteen (65%).

3. Regular rhythm under quinidin therapy resulted in one hundred percent of the patients with a cardiac history of two years or less.

4. All the cases, except one, had recent heart failure. All, except one, became compensated with digitalis, etc., before quinidin was started.

5. The highest single dosage was 45 grains (3.0 grams); the highest daily dosage was 200 grains (13.3 grams); the highest total dosage producing regular rhythm was 920 grains (61.3 grams); the highest total dosage over a period of two months was 3381 grains (225.4 grams).

6. A case of ventricular fibrillation is presented.

7. A case of auricular fibrillation in a boy of ten successfully treated with quinidin is presented.

8. It is emphasized very strongly that large doses of quinidin are not being advocated. This report simply shows that large divided doses of quinidin can be given if small doses have been tried and found unsuccessful. If large amounts are to be given in the gradually increasing doses used in this series the patient should be hospitalized so that his condition could be followed carefully.

We wish to thank Dr. Albert A. Hornor, Junior Visiting Physician at the Boston City Hospital, for his kind coöperation.

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TABLE I

Case	Sex	Age	Type of heart	Cardiac history	Regular rhythm	Dosage Quinidin effecting regularity
1	F	42	RHD	4 yrs.	Yes	8 grs. (0.5 gms.)
2	M	46	Art. Sc.	3 yrs.	No	
3	M	61	Art. Sc.	2 wks.	Yes	356 grs. (23.7 gms.)
4	M	65	Art. Sc.	5 yrs.	No	
5	F	48	RHD	3 yrs.	Yes	104 grs. (7.0 gms.)
6	M	58	Art. Sc.	2 yrs.	Yes	920 grs. (61.3 gms.)
7	F	63	Art. Sc.	2 mos.	Yes	70 grs. (4.6 gms.)
8	F	17	RHD	8 yrs.	No	
9	F	60	Art. Sc.	1 yr.	Yes	296 grs. (19.7 gms.)
10	M	54	Art. Sc.	4 yrs.	No	
11	M	63	Art. Sc.	2 wks.	Yes	276 grs. (18.3 gms.)
12	F	33	RHD	9 yrs.	No	
13	M	53	RHD	2 wks.	Yes	26 grs. (1.6 gms.)
14	F	72	Art. Sc.	1 yr.	Yes	331 grs. (22.0 gms.)
15	M	83	Art. Sc.	1 yr.	Yes	316 grs. (21.0 gms.)
16	M	67	Art. Sc.	3 mos.	Yes	211 grs. (14.0 gms.)
17	M	51	Art. Sc.	6 yrs.	No	
18	M	48	Art. Sc.	None	Yes	216 grs. (14.3 gms.)
19	M	10	RHD	2 yrs.	Yes	174 grs. (11.6 gms.)
20	F	48	RHD	5 yrs.	No	

TABLE II

CARDIAC HISTORY IN REGULAR RHYTHM CASES

1 yr. or less	9 = 70%
2 yrs.	2 = 15%
3 yrs.	1 = 7.5%
4 yrs.	1 = 7.5%

TABLE III

Cardiac history	No. pts.	Regular rhythm	Per cent
1 yr. or less	9	9	100
2 yrs.	2	2	100
3 yrs.	2	1	50
4 yrs. or more	7	1	14

TABLE IV

AMOUNT QUINIDIN EFFECTING REGULARITY

Case	Final daily dosage	Total dosage
1	8 grs. (0.5 gms.)	8 grs. (0.5 gms.)
3	100 grs. (6.6 gms.)	356 grs. (23.7 gms.)
5	30 grs. (2.0 gms.)	104 grs. (7.0 gms.)
6	75 grs. (5.0 gms.)	920 grs. (61.3 gms.)
7	30 grs. (2.0 gms.)	70 grs. (4.0 gms.)
9	30 grs. (2.0 gms.)	296 grs. (19.7 gms.)
11	45 grs. (3.0 gms.)	276 grs. (18.3 gms.)
13	20 grs. (1.8 gms.)	26 grs. (1.6 gms.)
14	100 grs. (6.6 gms.)	331 grs. (22.0 gms.)
15	150 grs. (10.0 gms.)	316 grs. (21.9 gms.)
16	75 grs. (5.0 gms.)	211 grs. (14.0 gms.)
18	75 grs. (5.0 gms.)	216 grs. (14.3 gms.)
19	90 grs. (6.0 gms.)	174 grs. (11.6 gms.)

CASE 1. M. K. 42. Housewife.

Diagnosis—Rheumatic Heart Disease; Mitral Stenosis; Auricular Fibrillation; Myocardial Insufficiency.

A fairly well developed, fairly well nourished white woman, complaining of palpitation and shortness of breath of 4 days' duration, entered hospital August 15, 1925. In 1921, at birth of her last child, she was told she had heart disease. Quinidine therapy was instituted on the 14th day (8-27-25) of her hospital illness, when still on small doses of digitalis. An initial dose of gr. iii of quinidine was given. The next morning at 5:00, gr. v were given. At 8:30 pulses were absolutely regular, confirmed by electrocardiogram. Patient was then placed on gr. i, t.i.d., and on 9-7-25 discharged relieved, on maintenance dose of quinidine, gr ii, t.i.d. Pulses regular on discharge.

On 12-8-25, this patient reported to Female O. P. D. complaining of palpitation and weakness. A slow pulse was recorded with an occasional extra-systole, otherwise regular. On no medication of any kind.

On 1-26-25, she again reported to M. O. P. D. with a similar complaint, and, except for an occasional extra-systole, pulses were absolutely regular. Still on no medication.

CASE 2. A. J. 45. Laborer.

Diagnosis—Auricular Fibrillation; Chronic Myocarditis; Heart Failure.

Admitted 7-2-25 complaining of shortness of breath, 5 days' duration. Unproductive cough began 2 days before admission. Had been on the service 6 months previously because of heart failure.

On admission cyanotic, orthopneic and coughing. Heart moderately enlarged to the left, sounds absolutely irregular, poor quality, rapid (140), pulse deficit of 20. Many moist rales over bases both lungs. Tenderness over right upper quadrant but liver not palpable. Slight edema over pretibial regions.

Improved greatly with rest, morphine and digitalis but continued to fibrillate. Remained in hospital although fully compensated because of social service problem. On 8-24-25 the digitalis maintenance dose was omitted and quinidine therapy started. On that day E. K. G. = auricular fibrillation.

Increasing doses of quinidine were given until patient received 20 grains (1.33 grams) six times on the 13th day. A total of 1034 grains (69.0 grams) was reached. Drug was then discontinued as fibrillation was unaffected. No toxic symptoms developed during this course of therapy. Patient stated he felt greatly improved and was discharged 9-26-25. Digitalis was not given until the next entry for heart failure in February, 1926.

CASE 3. F. P. 61. Door-man.

Diagnosis—Arteriosclerosis; Chronic Myocarditis; Auricular Fibrillation; Congestive Failure.

An obese white man of 61 years admitted 8-11-25, complaining of shortness of breath, cough, and precordial pain of 2 weeks' duration. A picture of advanced decompensation. Digitalis was pushed, but not effective until the 6th day when the irregularly irregular pulse dropped from 100 to 80.

On August 26, 1925, while still in bed, 16 days after beginning use of digitalis, this drug was stopped and quinidine was started and continued over the following eleven days to 9-6-25. That day regular rhythm was established after 356 grains of quinidine had been given, the highest daily dosage being 100 grains, the highest single dose being 20 grains. In the midst of this therapy the patient was allowed up and did well.

It is interesting to note that in the establishment of regular rhythm the pulse dropped from 80 to 54. Within a week, 9-14-25, the patient was discharged with regular rhythm on maintenance dose of quinidine of gr. iii, t. i. d.

He was followed for a month thereafter and on every visit was found to be regular, active and well, without symptoms of beginning failure.

By accident, on 12-15-25, this patient was found on one of our surgical wards convalescing from an operation for abdominal hernia. Pulses were regular and he gave a history of having stopped the use of quinidine one month previously.

CASE 4. L. S. 65. Worker in Lumber Yard.

Diagnosis—Arteriosclerosis; Chronic Myocarditis; Congestive Failure; Auricular Fibrillation.

A white man of 65 years, transferred on 8-28-25 from one of the surgical services who had operated on him under local anesthesia for an indurated abdominal hernia. In 1920 the patient had been in this hospital with signs of beginning decompensation, though not fibrillating. He was now suffering from heart failure and uremia. Examination disclosed marked peripheral arteriosclerosis; an enlarged irregularly irregular heart with signs of congestive failure. He was on small amounts of digitalis until 8-31-25, when quinidine therapy was begun, and for 29 consecutive days the patient received a total of 1000 grains without change in rhythm and without toxic symptoms. Three weeks later the patient was well enough to be discharged.

CASE 5. M. T. 48. Housewife.

Diagnosis—Rheumatic Heart Disease; Mitral Stenosis; Auricular Fibrillation; Congestive Heart Failure; Acute Rheumatic Fever.

A w. d., somewhat obese white woman, complaining of shortness of breath, palpitation, attacks of numbness of 2 days' duration. Admitted 8-26-25. In 1922 the patient was bed-ridden for 3 weeks with rheumatic fever, and at the time was advised that she had heart disease.

All signs of cardiac enlargement with mitral stenosis were present. On August 29, 1925, temperature shot up to 101° with corresponding rise in pulse from 60 to 90, and patient complained of pains in various joints, which showed no swelling, though they were tender. Under intensive salicylate therapy attack quieted down. Electrocardiogram of 9-3-25 = auricular fibrillation. On 9-8-25 a compensated heart which was fibrillating. Digitalis was omitted and quinidine begun on 9-11-25. Electrocardiogram on 9-16-25 = auricular fibrillation, while on 9-17-25 after a total dosage of 104 grains of quinidine in 8 days electrocardiogram=regular rhythm.

From 9-17-25 to 10-20-25, the date of discharge, the patient was up and about the ward, compensated, regular rhythm, on small so-called maintenance doses of quinidine.

CASE 6. R. H. 58. Teamster.

Diagnosis—Luetic Aortitis; Aortic Regurgitation; Arteriosclerosis; Auricular Fibrillation; Congestive Heart Failure; Anasarca.

Diagnosed in May, 1923, aortic regurgitation, hypertension and syphilis, this w.d., w.n., ageing colored man entered August 12, 1925, complaining of shortness of breath and palpitation of 9 months' duration.

On admission in extremis, almost a dead weight, waterlogged, apex note equalling pulse rate of 140, and absolutely irregular. Signs of aortic regurgitation with a tremendous heart and marked peripheral arteriosclerosis.

Morphine, digitalis and diuretics were pushed. Heart quieted down nicely but the edema remained even under such diuretics as diuretin, theocin. Finally, however, novasurol was given and the fluid disappeared very quickly, effecting a change also in the fitness of the patient.

Electrocardiogram on 9-17-25=auricular fibrillation. Test dose of quinidine on 9-19-25 after a total dosage of 215 grains in 5 days, pulses and apex beat were found to be regular except for an occasional extrasystole.

However, while on so-called maintenance dose of quinine gr. iii t.i.d., and on the first day he was in a chair, 10-1-25, clinically irregular, rhythm occurred and was confirmed by an electrocardiogram. Accordingly, another course of quinidine was started on 10-1-25, and on 10-19-25, after a total dosage of 920 grains, patient became clinically regular, confirmed the following day by electrocardiogram. From 10-21-25 to 11-25-25, the patient received 75 grains of quinidine daily, or a total dosage for that period of 2250 grains, continuing regular all along.

On 11-25-25 quinidine was stopped entirely, regularity continuing to date of discharge, December 12, 1925.

From 9-19-25 to 11-25-25 the patient received 3381 grains of quinidine, without one day's intermission.

January, 1926, the patient returned to the hospital in extremis, waterlogged, fibrillating. Rest, morphin and digitalis were of no avail. He quickly died.

Case 7. T. D. 63. Housewife.

Diagnosis—Arteriosclerosis; Chronic Myocarditis; Auricular Fibrillation; Congestive Heart Failure.

The chief complaint here was shortness of breath of two months' duration. A picture of marked congestive failure when admitted, 9-8-25. There were peripheral sclerosis of arteries, an enlarged heart, apex beat equalling pulse rate of 160-170, and absolutely irregular.

Rest, morphin, digitalis effected a drop in pulse and a decided change in the patient.

On 9-17-25, the patient was allowed up, all signs of congestive failure having disappeared, and the pulse and apex note at 80, although still absolutely irregular. Electrocardiogram 9-12-25 = auricular fibrillation.

Quinidine therapy began 9-22-25 and within 36 hours after a total dosage of 70 grains, regularity was established, that is on 9-24-25. So-called maintenance dose of quindine gr. iii, t.i.d., was then prescribed, but on this dosage regularity broke down on 9-25-25, but was soon re-established on quinidine gr. x for one dose. Accordingly, the patient was placed on gr. x, t.i.d. Electrocardiogram of 9-25-25 = regular rhythm.

Patient discharged 9-29-25, fully compensated, with pulses regular on quinidine gr. vi, t.i.d.

Electrocardiogram on 10-6-25 when she returned for observation showed regular rhythm.

Several times later the patient reported for observation and at each examination she was compensated and showed regular rhythm both clinically and by electrocardiogram.

Case 8. M. C. 17. School girl.

Diagnosis—Rheumatic Heart Disease; Mitral Stenosis and Regurgitation; Auricular Fibrillation; Flutter; Heart Failure.

A girl of 17 entered the hospital October 7, 1925, in collapse, complaining of palpitation and shortness of breath of 2 months' duration. She had rheumatic fever at the age of 9.

Able to lie almost flat in bed, respiration rapid, cyanotic, delirium cordis, pulse deficit of 20 and irregular rate of 110 at pulse, signs of markedly enlarged heart with mitral stenosis, but no rales bases of lungs, no tender liver, no edema of extremities.

Digitalis and morphine improved patient quickly. Electrocardiogram on 10-9-25 = auricular fibrillation or impure flutter with a ventricular rate of 53-70; on 10-17-25 a rate of 40-69; and on 10-20-25 a rate of 65-76.

Quinidine therapy began 10-20-25 while still on digitalis, but was stopped on 11-2-25 after a total dosage of 526 grains, or after 15 gr. t.i.d. had been reached, because of lightness of head, ringing in ears and nausea. Regularity was not effected.

On 11-9-25 electrocardiogram = fibrillation with ventricular rate of 74-100. On 11-16-25 quinidine therapy again started. On 11-21-25, after a total dosage of 196 grains in 5 days, toxic symptoms again manifested themselves so that the drug was discontinued. Apex beat and pulses still absolutely irregular.

Patient discharged 11-25-25. Returned for observation 12-21-25. Pulse rate of 80 with definite irregularity. On small doses of digitalis.

Case 9. B. M. 60. Housewife.

Diagnosis—General Arteriosclerosis; Chronic Myocarditis; Congestive Heart Failure.

Admitted 9-28-25, complaining of shortness of breath of one year's duration. Signs and symptoms of marked heart failure with auricular fibrillation.

An excellent response to rest, morphine and digitalis. Electrocardiogram on 10-1-25 = auricular fibrillation, also on 10-15-25, on which day she was allowed up, with compensation well established. Digitalis omitted on 10-10-25.

Quinidine therapy instituted 10-20-25. Regularity established 10-28-25 after a total dosage of 296 grains or after gr. x t.i.d. had been given. Electrocardiogram on 10-29-25 = regular rhythm.

So-called maintenance dose of quinidine gr. iii t.i.d. with maintaining of regular rhythm until 12-10-25, when quinidine therapy was stopped. However, regular rhythm continued up to time of discharged, 12-23-25.

Case 10. W. S. 54.

Diagnosis—Arteriosclerosis; Chronic Myocarditis; Auricular Fibrillation; Congestive Heart Failure; Psoriasis.

A history of a number of admissions to this hospital for heart trouble and of living on digitalis for some time, this man of 54 again entered the hospital 10-30-25, complaining of shortness of breath, more pronounced for 3 days. Signs and symptoms of marked heart failure with auricular fibrillation.

Did well on rest, morphine and digitalis. Electrocardiogram on 11-2-25 = auricular fibrillation. Allowed up on 11-6-25 with digitalis gr. x t.i.d. Quinidine therapy begun 11-9-25, stopped 11-23-25, without effecting regularity, after a total daily dosage of 125 grains was reached and after a total of 838 grains for the period had been given.

Patient discharged 11-24-25 with absolutely irregular pulses.

Case 11. D. C. 63. Laborer.

Diagnosis—Arteriosclerosis; Aortitis; Arteriosclerosis; Chronic Myocarditis; Auricular Fibrillation; Congestive Heart Failure.

The chief complaint of this man of 63 years who entered the hospital 11-7-25 was shortness of breath of 2 weeks' duration with marked symptoms and signs of congestive heart failure. He did not do well, even though at rest in bed and under morphine and digitalis.

When again up and about on 12-7-25 quinidine was started, while still on digitalis M. x t.i.d. Electrocardiogram of 11-4-25 and polygraph of 11-13-25 indicated auricular fibrillation. On 12-14-25 regularity was established after a total dosage of 276 grains of quinidine. Electrocardiogram on 12-16-25 = regular rhythm. Still quinidine gr. xv t.i.d. was given until 12-20-25, when it was reduced to gr. v t.i.d., finally being discontinued on day of discharge 12-22-25, with pulse absolutely regular and at a rate of 80.

The patient returned for observation 1-8-26, giving a history of increasing activity without quinidine and with irregular doses of digitalis. At this examination his pulses were regular at rate of 80.

Case 12. M. R. 33. Housewife.

Diagnosis—Rheumatic Heart Disease; Mitral Stenosis; Auricular Fibrillation; Heart Failure; Cirrhosis of Liver; Chronic Passive Congestion; Chronic Splenitis; Ascites.

A woman of 33, admitted December 1, 1925, complaining of shortness of breath on exertion and swelling of abdomen of two months' duration. Her third admission since October, 1924.

Orthopneic, dyspneic, rales bases both lungs. Cardiac enlargement present in axilla. Signs of mitral stenosis and of tricuspid regurgitation. Sounds irregularly irregular, equalling that at the wrists. Abdomen rounded and there is a fluid wave with shifting dullness. Liver palpable, smooth, tender, and over it a pulsation is felt. A hard spleen also felt. No edema of extremities.

Patient was digitalized. She progressed fairly well. Digitalis stopped 12-3-25. Electrocardiogram on 12-3-25 = auricular fibrillation. Quinidine begun 12-7-25, discontinued 12-16-25 because of unrest and non-establishment of regularity, after a daily dosage of 75 grains had been reached and after a total dosage of 410 grains had been given.

Patient discharged 12-23-25 much improved, though ever fibrillating.

Because of irritability and lack of co-operation, quinidine therapy was not given a fair trial.

CASE 13. D. M. 53. Teamster.

Diagnosis—Rheumatic Heart Disease; Mitral Stenosis; Auricular Fibrillation; Beginning Heart Failure.

A man of 53 entered the hospital January 13, 1926, complaining of precordial pain with increasing shortness of breath of 13 days' duration.

Dyspneic but not orthopneic. Moist rales both lung bases. Left cardiac enlargement. Signs of a mitral stenosis present. Sounds absolutely irregular at rate of 120, with a pulse deficit of 15-20. No tender liver or edema of extremities.

Patient digitalized and then digitalis was stopped. Patient progressed nicely. On 1-17-26 quinidine therapy was begun and within 24 hours, after a total dosage of 26 grains, regularity was established. However, the therapy was continued until a total daily dosage of 100 grains was given and until a dosage of 255 grains over a period of 5 days had been received.

Electrocardiogram on 1-14-26 = auricular fibrillation. Electrocardiogram on 1-19-26 = regular rhythm.

Absolute regularity was present on day of discharge, 1-30-26.

CASE 14. M. M. 72. Housewife.

Diagnosis—Arteriosclerosis; Hypertension; Obesity; Chronic Myocarditis; Auricular Fibrillation; Congestive Heart Failure; Cardiac Asthma.

The patient, a woman of 72, entered the hospital 1-17-26, complaining of shortness of breath of one year's duration.

Orthopneic, dyspneic, coughing. Moist rales throughout both lungs. Pulse rate of 92 equalling heart rate, both irregularly irregular. Tenderness over liver. Edema of both lower legs.

Rest, morphine and digitalis affected good results, the patient on 1-27-26 being allowed up. Fibrillation still present. Electrocardiogram of 1-26-26 = auricular fibrillation. Digitalis omitted and quinidine therapy begun on 1-30-26 when the patient was well compensated and up and about the ward. Regularity established clinically 2-4-26 after a total dosage of 331 grains in 6 days, the highest daily dosage being 100 grains. Quinidine was immediately stopped and within 21 hours there was a return to irregularity. On 2-8-26 electrocardiogram = auricular fibrillation. However, on 2-9-26 quinidine therapy was again resorted to. Within 5 days, or on 2-13-26, regularity was effected once more, after a total dosage of 141 grains, this time no more than 50 grains being given in any one day. Quinidine then omitted.

On day of discharge, 2-15-26, electrocardiogram = regular rhythm.

CASE 15. J. S. 83. Retired.

Diagnosis—Arteriosclerosis; Chronic Myocarditis; Auricular Fibrillation; Heart Failure; Cardiac Psychosis.

A man of 83 years admitted 12-7-25 complaining of weakness, shortness of breath and cough of 9 months' duration. Signs and symptoms of moderate heart failure and auricular fibrillation.

December 16, 1925, the patient became definitely disoriented, talked about and to unseen persons, became dangerous to himself, and had to be restrained and given sedatives. He cleared up well by 12-24-25. He continued to fibrillate and was not considered to be in fit shape for quinidine therapy until 1-7-26, on which day electrocardiogram = auricular fibrillation.

Quinidine therapy:

		Grs.
1-7-26	gr. iii t.i.d.	6
1-8-26	gr. v 5 i.d.	25
1-9-26	gr. x 5 i.d.	50
1-10-26	gr. xv 5 i.d.	75
1-11-26	gr. xx 5 i.d.	100
1-12-26	gr. xxv 6 i.d.	150
1-13-26	gr. xxx at 12:30 and 4:30 a.m.	60
	gr. xxx at 9:00	30
		Total 496

After the 9 o'clock dosage of grs. xxv 1-12-26, the patient was found to be clinically regular, upon a total dosage of 316 grains within a 6 day period. However, increasing doses were given to complete 200 grains within a 24 hour period, to a total dosage of 496 grains in 7 days, after which the drug had to be omitted entirely 1-13-26 because of vomiting. Regular rhythm continued.

CASE 16. J. LaF. 67. Longshoreman.

Diagnosis—Arteriosclerosis; Chronic Myocarditis; Auricular Fibrillation; Extra Systoles; Congestive Heart Failure; Cardiac Psychosis.

A longshoreman of 67, admitted 11-24-25, complaining of shortness of breath of 3 months' duration. Markedly decompensated on entrance, he responded to rest, morphine and digitalis, but only slowly. On 11-30-25 the patient became definiteley disoriented and dangerous to himself. He had to be restrained and given sedatives. In a few days he was normal again. He continued to fibrillate.

Electrocardiogram of 12-9-25 demonstrated auricular fibrillation. On digitora No. 1 daily. Quinidine therapy started 12-27-25 when still clinically irregular and fibrillating.

Quinidine therapy:

		Grs.
12-27-25	gr. 3 b.i.d.	6
12-28-25	gr. 3 5 i.d.	15
12-29-25	gr. 5 5 i.d.	25
12-30-25	gr. x 5 i.d.	50
12-31-25	gr. xv 5 i.d.	75
1-1-26	gr. xx 5 and 9	40
		Total 211

Regularity effected after the dosage indicated, confirmed by electrocardiogram of 1-4-26.

Quinidine therapy continued:

		Grs.
From 12-27-25 to 1-1-26		211
1-1-26	gr. xx at 1-5-9	60
1-2-26	gr. xx 5 i.d.	100
1-3-26	"	100
1-4-26	"	100
1-5-26	gr. xx at 5 and 9 a.m.	40
1-6-26 to 1-10-26	gr. v b.i.d. 5 days for a total of	50
	Total	661

Patient discharged 1-11-26, pulses absolutely regular, without quinidine.

Case 17. W. H. 51. Salesman.

Diagnosis—Hypertension; Arteriosclerosis; Congestive Heart Failure; Auricular Fibrillation.

Admitted 12-30-25, this patient, a man 51 years of age, complained of shortness of breath and cough of 2 months' duration, having had many previous entries to this hospital all with cardiac histories and diagnoses.

Pale, cyanotic, orthopneic, dyspneic, some peripheral arteriosclerosis, pulses equal, irregularly irregular, beats at the apex at rate of 70. Rales both bases of lungs. No tender liver or edema of lower extremities. B. P. 210/110; urine essentially negative.

Electrocardiogram on 1-4-26 = auricular fibrillation. On 1-14-26 = auricular fibrillation, ventricular rate of 38-25.

Quinidine begun 1-18-26 with the patient still in bed, not being our usual type of case for quinidine therapy.

The course of quinidine follows:

		Grs.
1-18-26	3 grs. b.i.d.	6
1-19-26	5 grs. 5 i.d.	25
1-20-26	10 grs. 5 i.d.	50
1-21-26	15 grs. 5 i.d.	75
1-22-26	20 grs. 5 i.d.	100
1-23-26	25 grs. 5 i.d.	125
1-24-26	30 grs. 5 i.d.	150
1-25-26	35 grs. 5 i.d.	175
1-26-26	40 grs. 5 i.d.	200
1-27-26	45 grs. 3 times	135
	Total	1041

Patient allowed up 1-24-26 and finally discharged on 2-1-26 compensated, fibrillating, the course of quinidine being unsuccessful.

Case 18. R. F. 48. Laborer.

Diagnosis—Arteriosclerosis; Chronic Myocarditis; Auricular Fibrillation; Herpes Zoster.

A man of 48 complaining of pain in left arm of 3 weeks' duration, "fog" before eyes of 6 weeks' duration, and headache of one year, admitted 1-28-26.

No symptoms or signs of heart failure. Fundi essentially negative. X-ray left shoulder negative, and nothing in sinuses to explain headache. Blood pressure 135/75, urine negative, blood Wassermann negative.

Apex beat absolutely irregular, and equalling rate of radial pulses, i.e., 60-70. Brachial arteries hard with beginning tortuosity. Pain in left arm due to Herpes Zoster.

Allowed up 2-4-26, still fibrillating.

On 2-18-26 electrocardiogram = auricular fibrillation.

Quinidine therapy:

		Grs.
2-10-26	gr. 3 b.i.d.	6
2-11-26	gr. 5 5 i.d.	25
2-12-26	gr. 10 5 i.d.	50
2-13-26	gr. 15 5 i.d.	75
2-14-26	gr. 20 at 5 a.m. gr. v at 1 and 5 p.m.	30
2-15-26	gr. 5 t.i.d.	15
2-16-26	gr. 5 t.i.d.	15
	Total	216

Quinidine begun 2-10-26; patient became regular clinically 2-11-26 after a total dosage of 21 grains. Increasing doses given, however, to demonstrate method of therapy, until grains 15 5 i.d. had been reached. Gradually lowered from that point until day of discharge 2-16-26, still regular, clinically and according to electrocardiogram.

Case 19. J. S. Age 10. School boy.

Diagnosis—Auricular Fibrillation; Mitral Stenosis; Heart Failure.

Admitted 1-14-26 because of shortness of breath which began two years previously. Slightly cyanotic and dyspneic on entrance. P. E. essentially negative except for heart which was enlarged to the right and to the left; an irregular irregularity; systolic and diastolic murmurs.

Patient was digitalized without any appreciable effect. Electrocardiogram = auricular fibrillation.

On 3-26-26 quinidine therapy was started:

		Grs.
3-26-26	gr. 2 b.i.d.	4
3-27-26	gr. 2 4 i.d.	8
3-28-26	gr. 4 6 i.d.	24
3-29-26	gr. 6 3 i.d.	18
3-30-26	gr. 10 6 i.d.	60
Became regular on 174 gr. (after 4th dose).		
3-31-26	gr. 15 6 i.d.	90
4-1-26	gr. 15 b.i.d.	30
4-2-26	gr. 10 b.i.d.	20
4-3-26 to 5-10-26	gr. 3 b.i.d.	202
	Total	456

Patient felt much better with onset of regular rhythm (3-31-26). On 4-10-26 he was allowed in a chair for the first time since admission. Gradual improvement continued. Quinidine was omitted on 5-10-26. Frequent electrocardiographic tracings showed regular rhythm.

Discharged greatly improved on 6-14-26. Was seen one month later—regular rhythm continued, patient was fairly active and feeling well.

This case was treated with quinidine through the courtesy of the Pediatric Service.

Case 20. V. L. Age 48. Housewife.

Diagnosis—Rheumatic Heart Disease; Mitral Stenosis; Heart Failure; Auricular Fibrilation; Ventricular Fibrillation.

A single woman of 48 was admitted to the Boston City Hospital January 19, 1926, complaining of shortness of breath of six months' duration, in attacks sufficiently severe to send her to bed for several days at a time. Her present illness, began the latter part of December, 1925, since which time she has been confined to bed and because of no improvement, came to us.

At the age of 11 she had her first attack of rheumatic fever. Infrequent attacks followed until 1921, in which year she had her last attack.

From June 2, 1924, to June 18, 1924, she was a patient at the B. C. H., her chief complaint at that time being shortness of breath with sore throat of 10 days duration. Condition was diagnosed acute bronchitis. For the three years preceeding this illness she had noted shortness of breath on exertion. At this admission, cardiac action was regular except for an occasional extra-systole, and some cardiac enlargement to the left was determinable clinically and by x-ray. No other essentials in past history.

When admitted January 19, 1926, the patient was orthopneic, dyspneic, and coughing at intervals. Rales filled both posterior lung bases. Apex impulse of heart found in left anterior axillary line, 13 cm. from midsternum. Delirium cordis was present, and the thrill felt was difficult to place in the cardiac cycle. Sounds were absolutely irregularly irregular, the mitral first sound being loud and booming, the pulmonic second sound being greater than the aortic second, and accentuated. Murmurs were heard but only inaccurately timed. Apex beat was noted at rate of 140. Pulses were absolutely irregular also, rate of 80. A palpable liver was obtained, but no fluid wave or shifting dullness of abdomen; edema of lower legs was present.

Blood pressure: systolic 140, diastolic 90. White blood cell count 8,000. Urine: no albumin, no sugar, negative sediment, specific gravity of 1016. Blood Wassermann negative.

Absolute rest, repeated doses of ¼ grain of morphia were given subcutaneously, and large doses of the tincture of digitalis were ordered. The patient did not do well. She vomited rather frequently so that the nursing staff did not push digitalis to the extent desired. Accordingly, the tincture was discontinued January 21, 1926, on the third day, while Digitora pills No. 2 t.i.d. were prescribed.

The apex beat on January 23rd was recorded at 120-140, with a pulse deficit ranging from 25-40. Orthopnea was still present, with rales in both lung bases, and a palpable liver, but there was a loss of edema of the lower legs. A poor prognosis was given.

Digitora was changed to No. i t.i.d. on January 24th, because of nausea and one or two vomiting spells.

The electrocardiograph of January 26th demonstrated auricular fibrillation and frequent ventricular ectopic beats, with a ventricular rate of 90-103.

Improvement was noted on January 28th, while on Digitora No. 1 t.i.d., apical rate being 90-100 with pulse deficit of 5-15, the four hour chart showing the pulse ranging between 70-80.

A congested, irritable gastric mucosa ever present.

Not compensated—orthopneic, dyspneic, rales at the bases of both lungs, though digitalization was attempted to the utmost, the patient was taken off Digitora on January 30th and quinidine therapy was instituted as follows:

		Grs.
1-30-26	gr. iii b.i.d.	6
1-31-26	gr. v 5 i.d.	25
2-1-26	gr. x at 5-9-1	30
	Total	61

So much nausea and irritability was evidenced after a total of 61 grains in 3 days that quinidine was discontinued on February 2nd, on which day the apical rate was 90-100, the pulse 60-70, with patient orthopneic and apprehensive. For several days following, nausea was present and food was not taken well, although lately some general change for the better was noted while on no medication.

Digitora No. II t.i.d. was ordered on February 5th, and discontinued February 8th. During this period no drop in pulse deficit was obtained, the drug being stopped because of nausea and vomiting. On the 8th she was allowed up in a chair for a half hour daily, not because of any improvement that was noted, but only to secure a better state of mind for the patient.

It was decided to give quinidine another trial. Accordingly, on the 9th quinidine therapeusis was begun and administered as follows:

2-9-26	gr. iii at 5 p.m.	3
2-10-26	gr. v at 9-1-5	15
2-11-26	gr. v at 9-1-5-9	20
2-12-26	gr. v at 5-9 gr. x at 1-5-9	40
2-13-26	gr. xv at 5-9-1	45
	Total	123

This therapy was interrupted after the initial dose of 3 grains because of nausea and vomiting. Nevertheless, it was continued the following day, nausea still being present, and the patient up in a chair at intervals, orthopneic, dyspneic on exertion, with rales at bases of lungs, a palpable liver, though no edema of lower legs.

Within 5 days 123 grains of quinidine were given, in the beginning at irregular intervals, the administration being guided by the subjective reactions of the patient, the highest single dose being 15 grains. On 2-13-26 at 4:00 p.m., 3 hours after the last dose of 15 grains, the patient entered into the following state, which thereafter occurred in cycles and ended in her death eight hours later.

Patient conscious and rational, pulses bigeminal and beats at apex coupled though irregularly so. Then followed a rapid irregular irregularity of apex beat and pulses, slowing up rather quickly until no apex beat or pulse was obtainable. At the beginning of this irregularity the patient's breathing became stertorous, her eyes closed, head fell limp on the pillow, face took on a ghastly hue, muscles of right side of face twitched, there were weak convulsive movements of left hand, finally after pulses and apex beat had been lost up to as high as two minutes, the patient gave a final gasp and breathing ceased, at which point the face became cyanotic. Patient apparently dead.

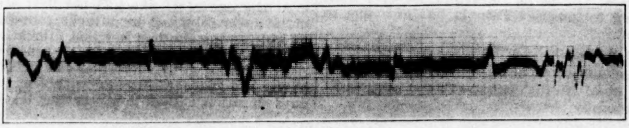
However, 15 to 20 seconds after the apparent final gasp, there was a weak and slow tapping of the heart at the apex, together with which weak pulses came and a beautiful pink flush suffused the face, whereupon the patient began to breathe slowly. Apex beat and pulses became more rapid and irregular, and patient was once more conscious and rational.

This cycle was completed about once every ten minutes, those immediately preceding her death being followed by the electrocardiograph.

We wish to thank Drs. Blumgart, Castle and Sprague for their kind assistance with the electrocardiographic tracings.

The pathologist made the following anatomical diagnoses: Chronic Auricular Endocarditis; Chronic Endocarditis of Mitral Valve with Mitral Stenosis; Congestion and Edema of Lungs; Old Pericarditis; Congestion of Liver and Spleen; Arteriosclerosis; No Pathology on Multiple Section of Brain.

Electrocardiograms showing ventricular fibrillation follow:—



CASE NO. 20. Film taken 45 minutes before death showing ventricular fibrillation.

SCHEMA FOR DIAGNOSIS OF HEART RHYTHM[*]

BY WILLIAM D. REID, M.D.

THE use of the following classification of the data, ascertained by clinical observation directed to the points given below, will often enable a correct diagnosis of the heart rhythms to be achieved. The analysis is not infallible; therefore, when the probable rhythm has been selected it is necessary that the known features of this rhythm be checked against the data observed in the patient. If not sufficiently in agreement it is probable that this schema has not been correctly used, or else the rhythm present is obscure and resort to an electrocardiogram or polygram is required.

A. REGULAR: (Heart sounds recurring at uniform intervals).

1. NORMAL RATE (60 to 100).
   a. *Alterable.* (Accelerates and slows in response to physiologic need, i. e., change of position, exercise, etc.)
   Normal rhythm.
   b. *Fixed rate* (does not respond to physiologic need).
   Auricular flutter
   or
   Auricular paroxysmal tachycardia } with partial heart-block, drug induced or due to lesions of bundle of His.

2. FAST: (100 or above).
   a. *Unstable.*
   Physiologic:—fever, exertion, excitement, voluntary (rare).
   Nervous:—effort syndrome; irritable heart.
   Hyperthyroidism.
   b. *Fixed:*
   Paroxysmal tachycardia.
   Auricular.
   A-V nodal (rare).
   Ventricular (very rare).
   Auricular flutter.

3. SLOW:
   a. *40-60 ± per minute.*
   Simple (physiologic) bradycardia.
   Sino-auricular block.
   Atrio-ventricular rhythm.
   b. *Less than 40 per minute.*
   Complete heart-block.
   Sino-auricular block (rare form).

B. IRREGULAR: (Heart sounds recurring at unequal intervals).

1. DOMINANT RHYTHM PRESENT. (A rhythm which governs, more or less, the contractions of the ventricle. It is revealed by: a run of four or more regular beats if these are the most forcible present; repetition of phases of irregularity however irregular such phases may be.)
   a. Accelerates with one phase of respiration and slows with other.
   Sinus arrhythmia.
   b. Faster and slower rates over periods greater than single respiratory cycles.
   Phasic type of sinus arrhythmia.
   Auricular flutter, rarely, with change in rate of ventricular response.
   Sino-auricular block, when this shows approximate halving or doubling of rate.
   c. Showing intermissions or absence of some beats in an arterial (radial) pulse.
   Extrasystoles (premature beats).
   Dropped beats of partial heart-block.
   Sino-auricular block.
   (1) Pulse deficit present (i. e., rate at apex exceeds that in a peripheral artery).
   Extrasystoles. (Especially reliable if one or two premature sounds are audible.)
   (2) Pulse deficit absent.
   Extrasystoles, not heard because of (1) their weakness or (2) poor auscultatory conditions, as thick chest wall, emphysema, etc.
   Partial A-V heart block with dropped beats.
   (a) Blocked normal auricular beats, usually.
   (b) Blocked auricular extrasystoles.
   Sino-auricular block (type with absence of individual heart beats).

2. DOMINANT RHYTHM ABSENT. ("Absolute arrhythmia.")
   Auricular fibrillation.

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[*] From the Evans Memorial, and Boston University School of Medicine.

ADDENDA

Rule of rate. An irregularity occurring at a heart rate of 120 or higher is almost always auricular fibrillation.

The commonest irregularity associated with insufficiency of the heart is auricular fibrillation.

An irregularity in a heart beating less than 100, and not obviously sinus arrhythmia, is usually extrasystoles or auricular fibrillation with partial heart-block.

A pulse deficit indicates auricular fibrillation or extrasystoles, never partial heart-block (exception: rare instance in which the faint auricular sound is audible).

Graphic methods of examination needed: (1) When in doubt of which rhythm is present, and to confirm auricular flutter, sino-auricular block, and partial heart-block. (2) To demonstrate intraventricular (bundle branch) block, and impairment of the ventricular muscle an electrocardiogram is essential. (3) An arterial pulse tracing is the only certain proof of pulsus alternans, although sometimes a correct diagnosis may be made by careful auscultation of the systolic blood pressure or of the heart itself.

The writer would appreciate suggestions for the improvement of this schema.

GASTROPTOSIS AND ENTEROPTOSIS

A Clinical Consideration and Review

BY HOWARD MOORE, M.D., F.A.C.S., AND FRANK E. WHEATLEY, M.D.

DEFINITION

GASTROPTOSIS and enteroptosis are conditions characterized by sagging of the stomach and intestines from their normal position. The conditions may be either congenital or acquired.

ANATOMY

The Stomach is situated normally just beneath the diaphragm, the bulk of the organ being in the left hypochondrium and well back toward the spine, but a small portion of the pyloric end extends into the epigastric region. The fundus reaches as high as the level of the sixth costal cartilage.

It receives its support from the oesophagus, which is the most fixed point of the organ, its own mesentery, from the ribs, from the left half of the transverse colon, from the spleen, the abdominal wall, and the mass of the small intestines that fill the cavity below it. Further than this, the slope of the posterior wall of the abdominal cavity with the shelf formed by the kidney and retroperitoneal fat gives the stomach considerable additional support.

In the ideal case, normally, no point in the greater curvature of the stomach gets much below the level of the third lumbar vertebra, at which level the stomach empties into the duodenum so, therefore, under normal conditions the stomach can empty itself with the minimum of effort, being greatly assisted by gravity.

The Duodenum is that part of the small intestine which is continuous with the stomach and may be divided, for the purpose of description, into four parts.

The first part has a mesentery and changes its position and direction with the emptying and filling of the stomach. When the latter is empty, it has a transverse direction; but when the stomach is distended, its pyloric end moves across the body of the first lumbar vertebra to its right side and the axis of the first part of the duodenum then becomes almost antero-posterior. With ptosis it becomes vertical and makes a sharp angle with the second portion.

The second or ductal portion lies at the right of the vertebral bodies and its axis extends downward and somewhat forward. This portion of the duodenum and the transverse or third portion have no mesentery, except rarely, and are, therefore, in fixed positions.

The third portion extends transversely across the body of the third or fourth lumbar vertebra. The fourth portion lies to the left of the spinal column and its axis is upward and backward. The small intestines which remain have a mesentery for their entire length.

The Colon commences in the right inguinal region and extends upward to the lower surface of the liver where it takes a bend known as the hepatic flexure. The ascending colon usually has no mesentery but is held in contact with the posterior abdominal wall by the peritoneum which covers its anterior surface and sides. From the hepatic flexure the colon extends first transversely and then with an upward and backward inclination to the splenic flexure, which is almost up to the diaphragm and well back. The transverse colon has a mesentery and by means of the omentum is attached to the greater curvature of the stomach. The descending portion of the colon is without mesentery usually until the sigmoid flexure is reached.

That these organs depend largely for their support upon correct posture can be easily shown. The oesophagus is attached to the diaphragm, as it passes through it. When the posture of the individual is normal the chest is high and the anterior margin of the diaphragm is therefore high so the dome of that muscle must, of necessity, be high; therefore, the cardiac end of the stomach is well supported. In such posture, the abdominal wall is flat, and at the level of the last lumbar vertebra the antero-posterior diameter of the abdominal cavity is only about a third of the maximum antero-posterior diameter of the body. The small intestines are, therefore, largely held up into the upper part of the cavity. These in turn give support to the transverse colon and the stomach. The axis of the abdominal cavity inclines upward and backward to such a degree because of its greater depth above (20 degrees from perpendicular) that the kidneys and spleen have definite support from the posterior abdominal wall. Another factor in the support of the viscera is the vacuum created by the arch of the diaphragm. This fact is very well demonstrated by observation under the fluoroscope of a case in which pneumoperitoneum has been done. The viscera including the liver, fall away from the diaphragm, producing a bulging, sagging abdomen. Therefore, it will be seen that the position of the viscera may be largely determined by the posture.

MORBID ANATOMY

Gastroptosis and enteroptosis are found in individuals whose posture is one of general droop. The first effect of this posture is to lower the anterior chest wall. This results among other things, first in flattening the diaphragm and second, in relaxing the abdominal wall. The stomach, therefore, having been deprived of some of its principal features of support, must sag downward. The sag of the organ at first must be limited to the central portion, because both the cardiac and pyloric ends are more or less fixed. This results, therefore, in a decided alteration in the shape of the organ and a stretching of the muscle wall which must cause atony and a disturbance of the function of the glands. The fundus of the stomach falls below the outlet and gravity becomes a force which interferes rather than aids in the emptying of food content. This may be still further influenced by a partial closing of the duodenum brought about by kinking from the dragging of the heavy distended stomach and by lessened tone of the muscle resulting from prolonged stretching.

Moreover, the second portion of the duodenum, being a fixed point, makes a center upon which the movement of the stomach must in part depend. As the stomach sags it is also dragged towards the right side of the body so that there is a time in its change of position when the fundus rests upon the transverse portion of the duodenum as it crosses the spinal column. If the stomach is distended either with food or gas, it is easy to see that pressure enough might exist to practically occlude the lumen of the gut at that point.

This undoubtedly explains why it is sometimes such a difficult matter to make the stomach empty itself except by vomiting.

Furthermore, it seems reasonable to suppose that the condition in which bile goes into the stomach instead of into the jejunum may be purely mechanical and explained in the same manner. The bile duct enters the duodenum in its second portion and certainly the writers' experience has been that the cases in which there has been distention of the stomach were those most likely to complain of true bilious attacks.

In these ptotic cases, the position of the small intestines of course will also be changed. Instead of there being a general distribution of this organ throughout the abdomen with the great bulk occupying the upper part of the cavity just under the stomach, they are all displaced downward into the lower abdomen. This must result in a temporary crowding and kinking which mechanically interferes with the free action of the bowels. More than this, the stretching of the mesentery must result in a disturbance not only of the circulation but also of innervation with consequent disturbance of function.

If the ascending and descending portions of the colon are normal in their support, of course the transverse portion will be the only section to suffer much displacement. This portion sags and as it does so the bowel at both the hepatic and splenic flexures must suffer a certain degree of occlusion, just as would be the result of bending any hollow tube, and of course there must also be a varying degree of disturbance both of blood supply and innervation, causing decreased muscle tone.

If, now, either the ascending or descending portion has a mesentery, as is well established by anatomists, the entire colon may suffer displacement. It has been estimated that a mesentery exists for one or both of these portions of the colon in at least one case in every five. Roentgenologists tell us that this condition is much more frequent than has formerly been supposed. These displacements must result either in kinking or crowding together of the tube, which will interfere with the normal functioning of the bowel.

ETIOLOGY

As has already been stated, twenty percent or more of all individuals have what may be called a congenital defect which predisposes to ptosis, i. e. a mesentery for the ascending and descending portions of the colon. The presence of a mesentery deprives the colon of one of its chief elements of support, and, therefore, in turn the support of the stomach is affected because the colon normally situated is a factor in maintaining the stomach's position. The individual stands with a forward displacement of the head and shoulders, a flattening of the chest, an increase in the dorsal convexity and usually an increased lordosis as well; the abdomen is prominent and relaxed. In such a type, as has been shown in the anatomical study of the subject, many of the important elements in the support of the viscera are either made of less value as such, or are entirely missing. There can be but one result—ptosis of varying degree.

Not only are postural variations in the erect positions of importance, but also in sitting or lying. Any position in which the abdominal muscles are relaxed and the abdominal cavity is cramped so that the viscera are squeezed or pushed from their normal positions must have the same result.

The style of clothing has a direct and important bearing on the etiology of ptosis and its influence is felt in two ways: first, it may directly displace viscera; or, second, it may alter posture.

The abdominal cavity is somewhat barrel shaped and its greatest lateral diameter is at about the level of the lower ribs. If a corset is worn which constricts this portion of the cavity, it must tend to displace the viscera which are crowded into it, namely the liver, pancreas, stomach, colon, and spleen. These organs cannot suffer displacement without affecting the position of all contiguous organs. The corset may also change the physiological curves of the spine as well as cause such other postural variations as the so-called antero-posterior trunk displacements. The waist bands of skirts and under garments may in a manner similar to that exerted by the corset so constrict the abdominal cavity as to cause a disturbance in the position of the contents of the cavity.

Excessive weight of clothing on the shoulders tends to drag them forward and this results in a flattening of the chest and in turn the relaxing of the abdominal muscles, also the variations in the physiological curves of the spine. Another respect in which clothing becomes a very important etiological factor is in the muscle weakness which results from the restriction in freedom of action. Ptosis may also result in cases having experienced loss of flesh—or who become weak and physically deficient as a result of illness.

OCCURRENCE

Ptosis is an extremely common condition. The "type" of individual described above is now almost the rule rather than the exception. In the public schools only about one child in ten stands well poised. The reason why one individual has symptoms and another has not, may be due only to the difference in their degree of adaptability.

The reasons why the postural variation is so frequently met, are known to all but may be enumerated. Urbanization, specialization in occupation, school life and other demands of civilization, the interference with body freedom by clothes, etc., are producing a change, too rapidly to permit an adjustment of the organism to the new conditions. These factors produce an environment different from that to which the organism is adapted and has previously had.

Sedentary life does not predispose to strong muscles and erect postures. The automobile is such a convenience and its use has become so universal, that the average individual jumps into a machine and rides instead of walking even the distance of a short block. Many individuals, through habit or lack of training, sit slumped down in positions which either tend to displace the viscera or at least interfere with their proper support. So, therefore, gastroptosis and enteroptosis will continue to be very common conditions until something is done to offset the tendency to the very common postural defects and body weaknesses. We are possibly transmitting tendencies to the coming generation and we are certainly allowing postures and weaknesses to develop in this present generation which will be far reaching in their consequences.

SIGNIFICANCE

A most regretable fact to the roentgenologist, to the orthopedist, or other special therapeutist, is that the general practitioner, and general surgeon as a rule, shows an extreme indifference to or a lack of appreciation of the importance of this condition. There is hardly any subjective symptom or objective sign suggesting abdominal pathology which may not be found in a study of these conditions and, moreover, many of the lesions found may be the result of them. Such manifestations as hunger pains, epigastric pains, epigastric tenderness, nausea, and others that we commonly think of as suggesting gastric or duodenal ulcer are commonly met. Then again there are the pains, tenderness, and jaundice which suggest gall bladder or gall stone attacks. There are also the abdominal pains and tender points that have made us all confident of such diagnoses as appendicitis, perityphlitis, kinks, abscesses, adhesions, etc. Finally, there are all of the various disturbances of digestion and bowel action. How many times an appendix has been removed and found to show but slight, if any, involvement, and how many times have we been sure of gall stones or ulcers when an X-ray examination and surgical search revealed none! That these signs and symptoms may be due to ptosis has been demonstrated both by X-ray and clinical studies.

That the explanation is simple, Brown has shown in a study of the relation[1] of the movable to the fixed points. There is the sagging stomach whose wall is stretched and whose blood supply is interfered with and in which there remains undigested food which ferments. The most likely result of deficient blood supply, if long continued, is ulceration or gangrene. While ulceration actually becomes a result there may be and frequently are symptoms and signs suggesting the result long before the process has developed to that extent.

This line of thought seems even more justifiable when we consider the duodenum. Here we have a fixed point and an organ which will not give way to the influence of gravity without first undergoing great distortion. Here again the sagging interferes with the blood supply with results similar to those described in the stomach. Therefore, should not duodenal ulcer be of common occurrence? The dragging and distortion results in mechanical interference with the filling and emptying of the organ with more chance for toxic and bacterial absorption. Many observers, believe gall stones to be of bacterial origin. The bacteria are certainly present and in the right place.

At the caecum many conditions tend to interfere with the normal or free passage of the bowel content. There may be valvular defects and adhesions. Absence of peristalsis is frequently seen as shown by studies of a case. At the hepatic flexure not only is there kinking but also tension with its disturbance of blood supply and nerve supply resulting in anaemia and deficient stimuli to peristaltic action. The mucosa if not ulcerated is at least partially broken down and offers a surface to which the contents may adhere and absorption result.

Variations in length, position, and fixed points of the colon are more common than has been the general impression. By means of X-ray observation of a barium enema, one is able to visualize the relation of this organ to the other viscera and it is astonishing to see the possibilities for disturbed function that exist in a large percentage of patients supposed to be normal. If the enema is properly given, according to the technic described by Dr. Wheatley[2], it is possible to fill not only the rectum and sigmoid but the entire colon, and in many cases the distal portion of the small intestine, without discomfort. We find great variation in the mesenteric attachments, with resulting increased mobility of various portions of this organ. We find bands of adhesions probably congenital, which cause fixation at unusual points. With the patient standing, these points of faulty support and abnormal fixation produce angulations which become mechanical reasons for the retention of the colonic content.

When, in addition to these findings, we discover redundancy in a patient suffering from ptosis, we may have the most bizarre arrangement of the colon, coiled and kinked in the lower part of the abdomen.

The effect upon the organism of these changes and their resulting interference with the digestive and metabolic functions are varied. In the first place we must naturally expect that the general strength must suffer, for we know that upon the digestion of food eaten, depends not only the body metabolism, but also the energy to be expended. This brings us naturally to think of that great class of cases known as neurasthenics, for one fact is evident to all who have studied these conditions of ptosis, i. e. a large percentage of them may be classed as typical neurasthenics. It seems not only possible but probable that a great many of these cases we have seen in which the cause was unknown, can be accounted for in this way. At any rate, a condition of neurasthenia is what one would expect and seems easy of explanation. Perhaps the most constant characteristic of this condition is what has been called "irritable weakness." We have all heard the axiom to the effect that the best way to keep a man good natured is to keep his digestion good. If, therefore, we have a condition which tends to produce a weakness and at the same time an irritability, we have in a word a condition which is characteristically that of neurasthenia. Neurasthenics are seldom good physical types and the converse is also true.

One other point seems worthy of emphasis in this connection. We know that peripheral nerve iritation sometimes travels centripetally. Is it not possible that such may be the case with the nerves from the epigastric plexus to the stomach? We all know what a blow on the solar plexus feels like and what its effect may be. May not the frequent prolonged pressure upon the plexus from the stomach distended with gas have a similar result?

Next in importance are the results of the absorption of the poisons created by food in the alimentary canal. This autointoxication may come about in two ways—first, through the absorption of the results of faulty metabolic processes such as fermentative changes; or second, through the absorption of toxins in normal excreta which are retained too long within the bowel.

Certain joint manifestations are unquestionably the result of such conditions. It seems at least likely that the atrophic form and many of the infectious forms may find their origin in the results of ptosis. In the infectious group of course one would include not only those cases in which there was little question of bacteria being present, but also those which clinically were infectious but no bacteria were demonstrable. Dr. Goldthwait[3] reports that in no case seen by him of the atrophic type has X-ray examination failed to show ptosis and resulting disturbance.

For some time it has been supposed that the hypertrophic form of arthritis was the result of a disturbance of metabolism and while there is yet no proof that these enteroptoses are the primary factors in the metabolic disturbances it seems reasonable to suppose that they may have a bearing.

Neuritis and neuralgias are unquestionably related to these disturbances. Cases have been observed in which the history revealed the classical exciting causes such as prolonged fatigue, exposure to drafts, etc., but which would not respond to the neurologist's treatment, or any local treatment until after the existing ptosis had been corrected.

TREATMENT

The treatment may be considered under two divisions, prophylactic and corrective.

Prophylactic measures should begin early in life. It has been shown that these changes may go on to a more normal condition after birth under favorable circumstances. We should insist, therefore, that the clothing of a baby or a growing child should be such that it will not only not alter the form or in any way restrict its freedom of action; but also during this same period that the child should not be put in postures which are harmful. When the child is old enough to appreciate what he is being told, he should be taught how to stand and sit correctly. If he shows tendencies towards the type described above, he should be given definite treatment. A great many parents take their children to physicians for advice about these postural variations and it is unfortunate that so many of them are told that the conditions will be out-grown or that they are not of sufficient consequence to warrant the expenditure of time or money for their correction.

These conditions are not out-grown, and they are of sufficient importance to warrant the expenditure of a great deal of time and money for their correction. A physician who tells a parent not to worry or pay any attention to such a condition is as much to be criticised as if he said the same thing after finding that a child had a tuberculous focus in his lungs.

The training of children to use their bodies correctly is most important. It is not enough to go to a Y. M. C. A. or municipal gymnasium. A number of such gyms have been visited by the writer and the disregard of the correct use of the body in the work done seems to be a fact most pitifully apparent. The thought in such places seems to be simply the providing of exercise or the development of skill in dancing and doing stunts.

CORRECTIVE TREATMENT

The sedentary life of most adults, or physical work demanding improper use of the body, the wearing of corsets and tight clothes, and improper posture have deprived the abdominal muscles of their tone and supporting power. A temporary or, occasionally, a permanent artificial support must be provided. The organs displaced must be replaced in as near their normal position as possible. In the latter measure gravity may be made to assist instead of hinder by having the patient take such postures as the knee-chest or the prone-hanging positions at regular and frequent intervals. In the former, the thighs should be perpendicular in order that the hips may be as high as possible. The latter may be done over the side of a bed or the end of a couch. In either position the abdominal muscles are tightened up and greatly assist in restoring the viscera to their normal relation with each other. These positions are most valuable about an hour or two after meals. If, after assuming either of these postures, the patient can immediately assume the dextra decubitus the stomach will be assisted in its process of emptying.

A corset or belt is necessary for many patients but it is a serious error, except in unusual cases, to consider such support as more than temporary. It should be but the means of providing temporary relief while the normal supports are being toned up and the posture corrected. No artificial support can ever take the place of the natural supports no matter how well made or carefully fitted.

The support used should be as light, diminutive, and as flexible as will accomplish its purpose. Otherwise it is a handicap and delays the restoration of normal tone to the natural supports. Every case should be given gymnastic work. This should, however, be very carefully prescribed for every individual case. The prescription which would be applicable to one case might be most harmful to another. No rules, therefore, can be given to cover all cases but the gymnastic treatment has for its object certain results and certain principles are involved. First, it is posture training or posture correcting; second, it serves to strengthen certain deficient muscles or groups of muscles; third, it serves to improve the general tone and strength of the individual.

Treatment of a case in which there is a manifestly congenital defect must not be expected to alter, in any large measure, the abnormal anatomy but experience has shown that it will overcome to a great degree the dysfunctions accompanying such a condition.

The diet is of great importance. First of all, the sweets, starchy, and rich foods of any nature should be greatly restricted until after the tendencies to fermentative processes have been corrected, and malt or spiritous liquors forbidden. A simple diet readily assimilable should be prescribed to suit the individual case. It will sometimes be necessary to go so far as to limit the food to malted milk or Mellin's Food for a week. The diet should then be increased by such additions as toasted crackers, shredded wheat, hominy, corn bread, thin broths, custards, tapioca, junket, baked apple, oranges, etc.

After the digestive function has been improved and the symptoms of the digestive disturbance relieved, the diet should be outlined with special reference to the activity of the bowels. Fruits of all kinds, except bananas, may and should be freely taken.

In conclusion, it seems well to emphasize the fact that good posture and correct use of the body are the most important factors in correcting these conditions of ptosis and their consequences. But belt and corset must serve primarily to correct the posture and secondarily to support the displaced organs, and many of our surgical procedures will fail unless they are supplementary to measures designed to correct the posture so that the natural supporting elements are restored, or at least that unnatural displacing forces are eliminated.

Our greatest possibilities seem to be in the field of prophylactic measures. Let us so train the coming generation that they will not only be better physical types but that it will not be necessary to supplement the nature-given supports with props and stays as the price of a better existence.

REFERENCES

1 Brown: Boston Med. and Surg. Jour., Vol. 171, No. 161.
2 Wheatley: Boston Med. and Surg. Jour., Vol. 188, No. 15.
3 Goldthwait: Boston Med. and Surg. Jour., Vol. 162, No. 21.

ILLUSTRATIONS

Case 1. Miss M. G. H., 27 years old. Occupation—Court stenographer.

Patient was first seen on December 14, 1914, and at that time was complaining of severe indigestion of about five years duration. Just previous to the onset of trouble she had an operation for goiter. Following this operation she had continuous nausea for several weeks. Patient also stated she had never been entirely free from the gastric disturbance, that she had a great deal of gas in stomach following each meal and frequent nausea which was not relieved until after vomiting. She stated that she was eating very little because of this distress, and that she had lost about twenty-five pounds. Condition of bowels fair. She exercises very little because she is too tired after her work.

Physical Examination. Patient was a tall, slender girl whose general condition was apparently not good. She had poor color and was insufficiently nourished. She stood with rather marked backward displacement of the upper trunk and considerable tendency to forward shoulders and head. Both physiological curves were considerably increased. The abdomen was relaxed and somewhat tender over the entire lower portion. There was no muscle splinting and no masses were palpable. X-ray examination was made which showed a rather marked degree of ptosis and atonicity of the stomach; the small intestine and colon were in fairly good position. Eleven hours after eating apparently about one-half of the barium meal remained in the stomach. There was no evidence of ulceration either in the stomach or duodenum and no constrictions.

Treatment. Patient was fitted with a short, flexible corset to give support to the lower abdomen and allow freedom in the trunk movements. Her diet was restricted to eliminate the starches and sugars and provide the coarser elements. She was started on graded exercises, the first few days doing only abdominal retraction and from that working up to a prescription which required about thirty minutes to carry out. The patient experienced almost immediate relief. She reported at frequent intervals for about three years. During that time she became gradually better and experienced only occasional attacks of indigestion, which she stated usually followed periods of extra hard work which resulted in fatigue. At the last report, patient considered herself very well and agreed to report if she had any further trouble.

Case 2. Miss E. W. C., 30 years old. Occupation—School teacher.

Patient was first seen on January 29, 1915. She was complaining at that time of pain and burning sensation in stomach of about six years duration. During that time she had been tender over the upper abdomen. She had been seen by an internist and a surgeon, both of whom considered her trouble due to ulcer of the stomach. This diagnosis was said to have been confirmed by X-ray examination. Patient had been in the hospital for ten days and since going to bed had experienced a little relief, but said she felt very weak in a general way and had considerable soreness in the region of the stomach. She said she had always been inclined to work and play beyond her strength and never gave in to anything. She also stated her condition was always aggravated during periods of fatigue.

Physical Examination. Patient was a fairly well nourished young woman whose general condition could be called fair. Examination was essentially negative, except that her posture was poor. She had considerable increase in her physiological curves, a moderate degree of forward shoulders, chest flat and abdomen relaxed and somewhat prominent. There was considerable tenderness over the entire abdomen, but particularly over the epigastrium.

Treatment. Patient did not want an operation if she could be relieved in any other way and it was, therefore, suggested that her diet be restricted and that she remain recumbent until her general condition was improved. Patient began to improve in a general way. In about a week she was able to sit up without discomfort or other ill effect. She was then fitted with a corset which gave support to the lower abdomen and freedom at the waistline so that body movements were but slightly restricted. A carefully graded program of corrective exercises was also prescribed. Patient continued to improve and by the middle of April considered herself practically well. During the early summer she experienced a slight attack similar to that previously described. Patient admitted having been careless about her diet. This attack was of short duration and symptoms cleared up within a few days. Patient was seen at intervals until the Spring of 1918. During this time she had practically no trouble except an occasional slight attack which followed extreme fatigue or carelessness with regard to exercises and diet. The writer then went into the army service for a period of thirteen months. In July, 1919, patient was seen at the hospital where, in his absence, arrangements had been made for an operation. Patient stated that the past winter and spring she had felt so well that she had practically discontinued her exercises and felt that further treatment was unnecessary. During the past few weeks she had experienced a return of symptoms and the tenderness and gastric disturbance was now severe. It was felt both by her physician and the surgeon who had been called in consultation that she should be operated on for gastric ulcer. The operation was performed and a very careful search failed to reveal any evidence of ulcers past or present either in the stomach or duodenum. The gall bladder was of normal size and showed no evidence of disease nor the presence of stones. The appendix was normal, showed no evidence of previous disease but was removed. Patient made a satisfactory convalescence from the operation. Following her convalescence she again resorted to the previous orthopedic treatment and with similar benefit to that previously experienced. She has continued with her exercises, properly fitted corset and care with regard to diet and has experienced no return of symptoms.

Case 3. Mrs. J. B. S., 44 years old. Occupation—Housewife.

Patient was first seen August 12, 1914. She was complaining of pain in the lower abdomen of about fifteen years duration. No cause known. She stated that she had never been strong and was always constipated. As far back as she could remember she had never had a bowel movement except as the result of a physic. She was troubled a great deal with flatulence, both gastric and intestinal. The pain in the abdomen was usually aggravated immediately after eating. X-ray examination of the gastro-intestinal tract had been made and pronounced negative except for a marked degree of ptosis of stomach and large and small intestines.

Physical Examination. Patient was about fifteen pounds under weight; general condition only fair; very poor posture. There was considerable backward displacement of the upper trunk and both physiological curves were increased.

Treatment. Patient was immediately fitted with a short corset to give support to the lower abdomen. She was started on a course of carefully graded exercises and her diet was regulated to eliminate starches and sugars and provide the coarser elements. Patient experienced gradual improvement. The discomfort cleared up within two weeks. During this period the patient had two bowel movements without recourse to cathartic. The treatment was continued under supervision for a period of several weeks and patient discontinued the use of laxatives of any kind and was obliged to resort to an enema only occasionally. When last seen she was feeling very well and had gained fifteen pounds. She was advised to continue the exercises and measures prescribed regarding diet and report if she had any further trouble. Patient reported two or three times within the next two years and each time her report was favorable. She had no return of the discomfort and her bowels continued to function normally.

CONTAGIOUS DISEASES: THE VARIETY OF ADMINISTRATIVE METHODS FOR THEIR CONTROL*

BY CLARENCE L. SCAMMAN, M.D.

The control of contagious diseases by isolation and quarantine is a subject about which, as Mark Twain said of the weather, "There is much talk but little done."

The purpose of this paper is to discuss methods of control for those diseases which for the most part are spread by fairly direct contact of person with person.

Efforts in this direction were begun in this country in early colonial times, but according to Chapin[1] inland quarantine against smallpox then was no more and no less effective than it is now. Notification or reporting of scarlet fever and typhoid was first required in Brooklyn[2] in 1873, and of scarlet fever, diphtheria and measles in New York in 1874.

In 1913 Kerr and Moll[3] presented "An Analysis of the Laws and Regulations for the Control of Communicable Disease in the United States." Under the caption "Duration of Quarantine"[4] they say: "In no particular is the wide dissimilarity prevailing in existing quarantine practices so much in evidence as in the regulations establishing the duration of the period of quarantine for the various diseases."

Exactly ten years later, the Report[5] of the Committee on Municipal Health Department Practice of the American Public Health Association, in its discussion of the control of communicable disease, has this to say[6]: "In diphtheria and scarlet fever there is great uniformity of procedure. However, wide differences occur in scarlet fever in connection with the duration of quarantine. The difference between 20 days in Louisville and 42 days in Springfield seems excessive. In measles, mumps and chickenpox, the variations in the practice of different cities are extreme. Some cities exercise no effort at control, while other cities isolate these diseases almost as rigidly as they do scarlet fever. In whooping cough," the report continues, "the variation in the period of isolation, which is 14 days in New York and 56 days in Buffalo, is extreme. In poliomyelitis and meningitis the unsatisfactory state of knowledge regarding susceptibility and transmission is reflected in the chaotic state of efforts at control. In conclusion, the results of this survey show that the standard methods for the control of communicable disease, formulated by a committee of the American Public Health Association and adopted by that body, were not in general use at the time of this survey."

Although this report was published in 1923, it was based on conditions existing in 83 cities of 100,000 population or over in 1920. The table below[7] shows the per cent. of 83 cities which do or do not placard for various diseases. In some instances no information in regard to placarding was received. The percentages therefore apply to the total cities which *reported* placarding or no placarding for each disease listed.

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*Read at the New England Health Institute, Concord, N. H., October 1, 1926.

PERCENTAGE OF CITIES WHICH DO OR DO NOT PLACARD FOR VARIOUS DISEASES, 83 CITIES, 1920

	Do placard Per cent.	Do not placard Per cent.	No information
Typhoid	43 plus or minus	57 plus or minus	0
Diphtheria	100 " " "	0 " " "	0
Scarlet fever	100 " " "	0 " " "	0
Smallpox	100 " " "	0 " " "	0
Measles	63 " " "	37 " " "	4
Mumps	26 " " "	74 " " "	8
Whooping cough	49 " " "	51 " " "	7
Chickenpox	45 " " "	55 " " "	8
Cerebrospinal meningitis	74 " " "	26 " " "	5
Acute anterior poliomyelitis	85 " " "	15 " " "	5

Although such a table fails to show the variation in time, of periods of isolation and quarantine for the different cities in the various diseases, it calls to mind the difference in procedure of placarding in these 83 cities for ten diseases. To fix in your minds the dissimilarity in the methods of control of contagious disease, I quote from the survey of 86 cities made by the American Child Health Association, whose populations in 1920 ranged from 40,000 to 70,000. As you know, this survey was started in 1924 and published in 1925. Under communicable disease control, the report says[8]: "In one city the release from isolation of diphtheria is 10 days with 1 negative culture, in another 3 weeks or until released by a doctor, a third 3 weeks and 2 negative cultures on successive days. For scarlet fever it varies from 3 to 6 weeks or on the physician's permission. Child contacts are permitted to return to school after exposure to diphtheria cases under no less than 29 different conditions." Continuing, the report says: "It is regrettable that during the many years of organized health department supervision over communicable disease, so little scientific study has been given to the question of the effectiveness of various methods of administrative control of such diseases as measles, whooping cough, scarlet fever, and even diphtheria, that the value of such procedures as placarding, instruction, isolation, hospitalization, supervision of contacts, either as ideally conceived or as actually employed, is not known today."

However successful methods of isolation and quarantine have been in the last forty years in the control of contagious disease, at best they have been somewhat disappointing. Any attempt to completely standardize the variety of procedures in administrative control—if it were desirable—would be impossible on account of the many gaps in our knowledge of the exact mode of spread of some of the so-called contact diseases, witness acute anterior poliomyelitis. Without doubt, study of the variety of methods in vogue for the control of these diseases is needed to determine, if possible, with some degree of accuracy, their value and their limitations.

In the meantime, it would seem sound to foster in a given geographical area, a state for example, the same quarantine time period for the same disease. Citizens in adjoining communities must meet now and then on the boundary line and ask each other why so great a difference as 21 days exists in the regulations of their respective boards of health in regard to the quarantine of scarlet fever. It must be difficult for parents to understand why their children, exposed to chickenpox, German measles or mumps, are excluded from school, while their neighbor's children, just over the line but in another community, are allowed to go to school, with the same exposure.

Some administrative procedures are based on scientific grounds, while others have little back of them but superstition and ignorance. Although the fetish of gaseous disinfection in connection with contact diseases was put to rout by Chapin in 1905, at least half the cities surveyed by the Committee on Municipal Health Department Practice were still devotees of gaseous fumigation in 1920. Finally, the force of public opinion is the determining factor in making isolation and quarantine, in a given circumstance, effective or useless. In so far as it is possible, this public opinion should be based, not on ignorance and superstition, but on scientific fact and sound common sense. Sound public opinion can best be encouraged in the directions in which for the moment our interests lie by making rules and regulations in regard to the control of contagious disease, which are reasonable. Rules which are theoretically sound are often in their application so irritating as to create tremendous antagonism toward the health department. It has been said that all communicable diseases are preventable. Theoretically, this may be true, but it does not hold true in practice. It is true for those diseases in which active immunization is possible,—at the moment this method can be applied in three and possibly four of the common diseases—or when community infection by water or food is controlled, and insect carriers are done away with, but to make the statement that the common contagious diseases are preventable in practice, is to me one of the crimes in the name of Public Health. With all due regard to the beliefs of those who have faith in the effectiveness of our methods of control by isolation and quarantine, I judge no one has evidence that the incidence of the contact diseases has been cut down by our methods of quarantine control. On the other hand, the fatality has dropped remarkably in this group of diseases in recent years and yet I am sure no one will claim there is evidence to warrant our giving credit to our administrative procedures in isolation and quarantine for this tremendous saving of lives.

There is no doubt but that the same methods of isolation and quarantine, applied to small towns and villages, will accomplish more in the control of contagious disease than similar methods in cities of 50,000 or more population. Nevertheless, we should recognize the futility of some of our procedures in our endeavors to control contact disease. Those health administrators who have recognized the desirability of keeping the wage earners at work in spite of contagious disease in their household, have made reasonable rules in this regard, to their everlasting credit. After all, with the exception of a few occupations, there is no point in quarantining the wage earners. Some of us believe that less burdensome restrictions in regard to the exclusion of school contacts, at least following exposure to chickenpox, German measles and mumps, would be sound practice. These three diseases are almost never fatal and in civil life are seldom complicated, at least under the age of adolescence. Gestures toward their control by isolation and quarantine have accomplished little if anything. It is doubtful whether doctors see in a given community 50 per cent. of the actual cases at a given time. The average number of cases of these three diseases reported for the five years 1921-1925 in Massachusetts was 15,236. If the 355 cities and towns in Massachusetts followed our present minimum rules in regard to school exclusion for these three diseases, approximately 15,000 children—allowing a contact for each case—were excluded from school 21 days, or a total of 315,000 school days exclusion on account of these three diseases. According to figures furnished by the State Department of Education, for the school year ending June 30, 1925, the per capita cost per day for education in the public schools is about $0.45. These figures mean that the presumptive cost for school exclusion in these three diseases would approximate $150,000 a year. And this figure could well be multiplied by two, for I am convinced that at most but half of the cases of chickenpox, German measles and mumps are ever seen by a doctor and hence reported in the Commonwealth of Massachusetts. If this is so, our regulations are penalizing one group of children known to have been exposed to one of these three diseases, while a similar unknown group fully as large is continuing in school without restriction. I believe it to be sound administrative practice to allow contacts from these three diseases to continue in school and live at home. Some argue that because of the ease with which chickenpox is confused with mild smallpox, or German measles with scarlet fever, such a practice is dangerous. This argument, however, is not to the point because in this case we are speaking of contacts only. The diagnosis has already been made. Evidence is accumulating that some health administrators think this sound practice, for at least six New England cities with an approximate population of 550,000 are following this procedure. I would like to see it adopted widely, for at least in New England I believe it to be not only a sound but a progressive administrative procedure.

Finally, I would like to say that I believe thoroughly in isolation and quarantine, but I would like to see more thought and study given to our administrative procedures in regard to the control of contagious disease, to the end that our practices in regard to quarantine periods, placarding, school exclusion and so forth, be not only scientific, but practicable. When that time comes, I shall be convinced that we are farther on our way towards a Sanitary Science.

REFERENCES

1 History of State and Municipal Control of Diseases, p. 133, Charles V. Chapin in "A Half Century of Public Health."
2 Ibid., p. 143.
3 U. S. Public Health Bulletin, No. 62, July, 1913.
4 Ibid., p. 68.
5 U. S. Public Health Bulletin, No. 136, July, 1923.
6 Ibid., pp. 80-81.
7 Adapted from Table II, p. 82, U. S. Public Health Bulletin, No. 136.
8 A Survey of 86 Cities, American Child Health Association, pp. 75-76.

VIRGINIA—At the request of the Virginia State Board of Health, Dr. T. W. Galloway presented the subject of social hygiene at the State Teachers' Conference in Roanoke, Va., November 24 and 25.

DR. WILLIAM F. SNOW RETURNED—Dr. William F. Snow of the American Social Hygiene Association has recently returned from Geneva, Switzerland, after several months abroad in connection with his duties as chairman of the Body of Experts appointed by the Council of the League of Nations to study international traffic in women and children. During his sojourn in Europe Dr. Snow attended other conferences dealing with social hygiene in Berlin and Dusseldorf, Germany; Aberystwyth, Wales; Copenhagen, Denmark; Oxford University and London, England.

Case Records of the Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY R. C. CABOT, M.D.

F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 13061

URINARY FREQUENCY, CAUSE UNKNOWN

MEDICAL DEPARTMENT

An Albanian kitchen helper sixty years old entered December 31 complaining of frequency of four years' duration. The history was given by a friend with whom he had lived four months and who did not speak English well.

Ten years before admission the patient, who had apparently been healthy until that time, began to have slight constant pain in the small of his back. Four years before admission this became worse and he began to have frequency day and night, passing only small amounts. The urine was pale to red. He had slight burning with micturition and pain in the bladder just before it. Seven months before admission he had sharp "rheumatic pains" in both legs, disappearing two months before admission after medical treatment. In August, four months before admission, he entered a hospital in Boston where he stayed two weeks. He was then sent to Tewksbury. He stayed there only ten days, but did not return to work because of the severity of the back pain. For four months he had had sharp pains starting in both hands and radiating upward to the anterior chest. He felt as if there were a ball in the lower substernal region. This was relieved by induced vomiting. The pain had kept him awake at night. For two months he had had cough, worse at night, with some white sputum. Four weeks before admission he had an operation for cataract of the left eye. He was expected to return for a second operation about the present time but was too ill to do so. He had grown steadily weaker for two months and had rapidly lost his appetite. For three days he had been in bed and had had slight nosebleed once or twice daily. His frequency increased to three or four times per hour. He had taken nothing but water by mouth. His bowels had been very constipated. The friend thought he had lost much weight.

The friend knew of no past diseases except syphilis thirty-five years ago for which the patient had had some intravenous (?) treatment in Turkey. He was uncertain about gonorrhea. The patient took half a pint to a pint of alcoholic drink daily until the onset of the present illness. He did not require catharsis more than twice a month. He had however used some kind of cathartic every two or three days for four years.

Clinical examination showed a poorly developed, emaciated old man groaning, praying aloud, breathing very rapidly and complaining of substernal burning. The skin and mucous membranes were pale. The nasal septum was deviated to the right. The teeth were all out. There were bilateral pea-sized axillary lymph nodes. The spine was stiff, and showed slight kyphosis. The chest was barrel shaped. The expansion was fair. The lungs were hyperresonant, with a few medium moist râles, bilateral. The apex impulse of the heart was not seen or felt. The left border of dullness was in the fifth space 9.5 centimeters from midsternum, a centimeter and a half outside the midclavicular line. The substernal dullness was 6 centimeters, the right border 2 centimeters. The action was regular. The sounds were of poor quality, difficult to hear. There was a questionable systolic and a questionable diastolic murmur. The pulses were of poor volume. The radials were definitely thickened, the brachials tortuous. The blood pressure was 180/85. The abdomen showed slight tenderness in the right upper quadrant. A tender liver edge was felt 6 centimeters below the right costal margin in the mammary line. Rectal examination showed a hypertrophied prostate. There was a scar on the dorsum of the glans. The hands showed coarse tremor and Heberden's nodes. The left iris was irregular (iridectomy) and did not react. There was squint and ptosis, left. The right pupil reacted to light and distance. The amount of urine is not recorded; specific gravity 1.007-1.017, cloudy at one of two examinations, a trace of albumin at both, 0-5 red blood cells and 0-3 leucocytes per high power field at one of two sediment examinations, many fine brown granular casts at the other, which was loaded with small round cells. Blood: 15,200 leucocytes, 93 per cent polynuclears, hemoglobin 55 per cent., reds 2,940,000, anisocytosis and some poikilocytosis, platelets normal. Wassermann strongly positive. Non-protein nitrogen 285 milligrams. Stool, guaiac negative.

Temperature 98° to 99.3°. Pulse 72 to 101. Respiration 20 to 33.

The patient passed a comfortable night with morphia and nitroglycerin for what seemed to be characteristic anginal attacks. He was at times disoriented. At one a.m. January 2 he was catheterized and 22 ounces removed. He was not taking fluids by mouth. He was moderately dyspneic, but very drowsy and quiet. At half past five he had a sudden seizure of pain followed within a few minutes by loud râles and rapid deep breathing. The blood pressure was 180/110. He could not be made to hold nitroglycerin under his tongue. An amyl nitrite pearl inhaled relieved the dyspnea. He took several nitroglycerin tablets (grain 1/100) in the course of the following hour and a half. He gradually lapsed into complete coma. Moist râles increased throughout both sides of the chest. The heart sounds became inaudible, with pulmonary moisture present. At 11 a.m. January 2 he died.

Discussion

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

Pain starting in the hands and radiating to the chest is a rather rare symptom. The only case of this kind which I know anything about is angina pectoris, which sometimes starts in the wrists, usually the left wrist, and radiates towards the heart, instead of starting in the heart and radiating towards the wrists.

If we try to sum up this history before making the physical examination the longest symptom is pain in the back, the next longest is urinary frequency with bladder pain, and then a set of symptoms that I cannot directly connect with that at all,—this pain in the arms going to the chest. I cannot see any way in which his previous history of syphilis or gonorrhea could have any important relation to this. It seems to me the history starts essentially, as well as we can get it from this rather unsatisfactory account, with the bladder symptoms.

Now bladder symptoms of that duration ordinarily mean genito-urinary tuberculosis. They might be, I suppose, due to prostatic disease or to a urinary stricture, but these are not usually so persistent and severe as in this case. The other group of symptoms, the loss of appetite, weight, strength, and so on, go with any severe disease and do not help us to localize it.

NOTES ON THE PHYSICAL EXAMINATION

Kyphosis, I take it, cannot be taken to mean anything particular at his age. I should say the same of the barrel-shaped chest.

Ordinarily "questionable" murmurs turn out not to be there. There is no sense in a "questionable murmur." There is no difficulty in telling whether there is a murmur or not. It is not one of the things which ought to be left open. In general, when things are recorded in this way we do not find that much attention is to be paid to them. With the hypertension, which is the only important circulatory fact, I should suppose that he had a hypertrophied and dilated heart dependent on that.

Presumably he had a congested liver from passive congestion due to weakness of the heart.

The non-protein nitrogen, if true, is very important, and I have no doubt it is true.

We had three days' observation and during that time his temperature was essentially normal.

"Characteristic anginal attacks" is interesting, because we had been thinking of those in connection with pains which started in the hands. Now apparently they are going from center to periphery, or they would not call them characteristic.

DIFFERENTIAL DIAGNOSIS

I do not see how we can doubt that there are two processes here, one that affects his kidneys and presumably the rest of his urinary system, and one that affects his heart and arteries. He certainly has a hypertension, and I should suppose that he has a hypertrophied and dilated heart, without valve lesions, because those questionable murmurs mentioned in the first examination are not spoken of again. I think there is no trouble in the lungs or in the abdomen except what we can account for by passive congestion. The important discussable questions seem to me to be in the urinary system.

There the most important point is the non-protein nitrogen,—a tremendously high non-protein nitrogen which so far as I can see must mean the destruction of renal tissue either by nephritis or by some other destructive process. We had reason to suspect before another destructive renal process, namely tuberculosis. Whether tuberculosis of the kidneys alone ever gives such destruction of the kidneys as to give such a non-protein nitrogen as this I do not know, but I do not see why it should not, provided it is bilateral and chronic, as it seems to be in this case. Against urinary tuberculosis is the absence of tumor. It is true that we do see cases without tumor. It is still true that the majority of cases show something palpable beneath the ribs.

Can he have hydronephrosis or pyonephrosis? So far as I know, yes. Very little is said about his bladder while here in the hospital. Nobody thought he had bladder disease, and in a case like this, where the history is so unreliable, we have to remember that very likely that account of a long dysuria is not correct. If we were to throw out that history we should say this is nothing but a case of prostatic obstruction with chronic nephritis ending with hypertension and chronic uremia and a hypertrophied heart. And it may very well be true. That is, the history which made us think of a renal lesion such as hydronephrosis or pyonephrosis may not be correct. Very little is said about frequency or urgency in the hospital. Perhaps that is because he was so near death. He was catheterized once. But most of his sufferings here seem to be connected with his angina, which he certainly had had for four months.

That angina is not a very clean cut one as to duration, as to relation to exertion, and as to mode of relief. It seems to come even when he is quiet. It does not seem to be easily relieved by amyl nitrite, and perhaps we ought to suspect a blocked coronary and cardiac infarction. He might perfectly well have had a typical angina earlier and blocked coronary later.

One of the most interesting questions in medicine to-day is the relation between blocked coronary and angina. They certainly occur independently, but they also do occur in the same case.

So summing it up I think he has a hypertrophied and dilated heart dependent upon a chronic destructive renal lesion the exact nature of which I am not certain of. My guess is that nephritis is more probable than tuberculosis or pyonephrosis, which are also suggested by his history. If he had a chronic bladder trouble certainly more ought to show for it in his urine. Then he should have a hypertrophied and dilated heart, very probably with blocked coronary, myocarditis of the fibrous type, or more recent infarction. The other organs ought to show only passive congestion.

A Physician: How about his prostate in connection with his urinary symptoms?

Dr. Cabot: That is perfectly possible. There is pain up there. The mere fact of feeling a large prostate by rectum does not of course prove obstruction. We can have a large prostate which does not obstruct, and obstruction from a prostate which is not enlarged. Still, chronic prostatic obstruction with back pressure and nephritis is perfectly possible.

A Physician: Was a Wassermann done?

Dr. Cabot: The Wassermann was positive. But I do not see that we can connect that with any symptom that he has now. He may perfectly well have had syphilis. He may have it now, in his aorta, for instance, but I do not believe it had to do with his death.

That question makes it proper to say a word about aneurysm, which can cause many of the symptoms he has had. He was not X-rayed. We are never sure of the absence of aneurysm without X-ray. His pain, although it might go with it, is not characteristic, and he has no other physical signs to suggest it. I think it improbable though not impossible.

A Physician: Isn't that a fairly elastic specific gravity with that much nephritis?

Dr. Cabot: It is. I am glad you brought that out. That is against my diagnosis. I do not see why he has as much range as that. I shall have to leave that unexplained, for I still believe he has nephritis.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Chronic nephritis.
Arteriosclerotic and hypertensive heart disease.

DR. RICHARD C. CABOT'S DIAGNOSIS

Chronic destructive renal lesion, probably nephritis.
Hypertrophy and dilatation of the heart.
Probably blocked coronary.
Fibrous myocarditis or more recent infarction.
Chronic passive congestion.
Obstructing prostate

Or

Chronic prostatic obstruction with back pressure causing nephritis etc.

ANATOMICAL DIAGNOSIS

1 *Primary fatal lesions*

Arteriosclerosis.
Arteriosclerosis of coronary arteries.
Adenomatous hypertrophy of the prostate.
Arteriosclerotic and infectious nephritis.

2. *Secondary or terminal lesions*

Bronchopneumonia.
Hypertrophy of the heart.

3. *Historical landmarks*

Sclerosis of the testicles.

Dr. Mallory: The case seems to be primarily one of arteriosclerosis and of hypertrophied prostate. There was a terminal bronchopneumonia. The arteriosclerosis was manifest in the coronary arteries, which were calcified throughout their length, and in the aorta and the splenic and renal vessels. It led to very severe nephritis. Possibly there is an infectious element in it as well as the vascular one. I have not had opportunity to study it well enough to be sure. One kidney weighed 50 grams, the other only 100. The one weighing fifty grams was just a shell of parenchyma about four millimeters in width around a fatty pelvis which did not show evidence of infection. The other kidney, weighing 100 grams, was quite firm, the cortex not over two millimeters at any point.

The prostate was an example of obstruction due solely to a hypertrophied median lobe. The two lateral lobes were slightly but not very much enlarged, but the median lobe was almost pedunculated and formed a perfect ball valve in the mouth of the urethra. Pressure on the bladder from without failed to force any urine through the urethra at all, yet passage back the other way was perfectly easy.

There was no definite evidence of tuberculosis in the history—it was just a suggestion, wasn't it, Dr. Cabot?

Dr. Cabot: Yes.

Dr. Mallory: The only thing we found was one little calcified spot about one millimeter in diameter. An atrophic sclerosis of both testes confirms the old history of syphilis.

Dr. Cabot: **This case seems to me interesting as showing the great value of the non-protein nitrogen test. If we went by the urine alone or by the signs and symptoms, even including the blood pressure, we should not be at all certain of nephritis.** If they had not done that one test I do not see how we could very seriously consider nephritis. It would have looked much more like tuberculosis in the kidneys. I suppose his history of kidney symptoms was exaggerated. Was his bladder hypertrophied?

Dr. Mallory: Yes, it was. I imagine that in his relatively comatose condition it would have been quite impossible for him to have passed anything without catheterization.

CASE 13062

LUMBAR AND ABDOMINAL PAIN, CAUSE UNKNOWN

Medical Department

A married Polish Jewess fifty-two years old was referred to the surgical wards from the Out-Patient Department after six weeks' observation. The complaints were pain in the abdomen and across the back and irregular and profuse catamenia. Fibroids of the fundus were found. August 5 she entered the wards.

Examination showed slightly irregular pupils. The heart was not markedly enlarged. The sounds were sharp. There were no thrills or murmurs. The pulmonic second sound was accentuated, the aortic second sharp, with a definite ringing quite characteristic of hypertension. The artery walls were palpable. The blood pressure was 225/110. The extremities showed many varicosities and slight edema. Pelvic examination showed slight retroversion of the uterus and a knobby mass on the fundus. The cervix was soft, with slight laceration and very little erosion. There was some leucorrhea.

The amount of urine is not recorded. The specific gravity was 1.020. There was a very slight trace of albumin at one of two examinations. Sediment negative. The blood is not recorded except the hemoglobin, 80 per cent. A Wassermann was negative. The non-protein nitrogen was 42.9 milligrams.

A pathological report stated, "No evidence of malignant disease in fragments examined, but merely endometrium."

A medical consultant reported that he believed the patient able to stand a moderately long operation in spite of the hypertension. The visiting surgeon decided however that palliative treatment with radium would be preferable to operation. September 9 the patient was discharged to the Huntington Hospital.

The history of the next seven years was given by her husband because at the time of her reentry she was too deaf for history taking. After leaving this hospital she made one or two stays of a day each at the Huntington Hospital. A report from this hospital stated that the patient received three radium treatments with marked benefit. She was advised to return to the Massachusetts General Hospital for treatment of the kidneys. Four years later, two years before her readmission to the Massachusetts General Hospital, she returned to the Huntington Hospital because of a feeling of fullness in the abdomen and a little discomfort in the pelvis. Examination showed no evidence of disease.

Her husband said that her health was in general pretty good. He knew nothing about vaginal bleeding. He had occasionally noticed blood clots in her urine. He had noticed mental changes even preceding her previous admission. She had been progressively restless, irritable and very irresponsible, continually complained of ailments, was careless about her dress and person, talked much to herself and was quarrelsome. She frequently threatened suicide. She had sudden cravings for certain kinds of food. At some meals she would overeat and have indigestion, nausea and vomiting at the end of the day. At times she was up and walking about the greater part of the night. She was very unsociable. One brother and one sister were now in a psychopathic hospital.

Two weeks before her second admission she began to have considerable swelling of the ankles and some generalized pain over the body. The edema persisted, more marked if she was on her feet. She had productive cough for which she had taken aspirin. Twice during the week before readmission she fainted for a few minutes. During the two weeks she had an occasional nosebleed, complained of dyspnea and orthopnea, and slept in a chair. It was thought the history must be discounted because of the husband's emphatic criticism of his wife. He thought her trouble was chiefly mental. He said that her vaginal bleeding began years ago after an attempt at abortion and said that she had performed abortion many times.

February 11, seven years after her previous stay, she reentered the hospital.

Examination showed a fairly well developed and nourished woman, pale, cyanotic and markedly dyspneic and orthopneic. There was slight puffiness below the eyes. Lower teeth false, upper carious and capped. Pyorrhea. Throat and tonsils reddened. Cervical glands moderately enlarged. Chest expansion diminished. Crepitant râles over both lungs front and back, dullness with diminished voice and breath sounds over the left lower back and left axilla, also to a lesser extent over the right chest posteriorly and in the right axilla. Heart markedly enlarged to the left and slightly down. Systolic murmur at the apex. Second sound at the apex reduplicated. Arch markedly widened. Systolic murmur over the aortic area. Aortic second sound accentuated, pulmonic second reduplicated. Blood pressure 243/128 to 150/90. Vessels moderately sclerotic and tortuous. Liver markedly enlarged and tender. Moderate ascites. Edema of the legs, thighs and sacrum. An area of redness and tenderness over both lower shins anteriorly. Pupils normal. Knee-jerks sluggish. Ankle-jerks not obtained. Vibratory sense normal in both feet.

Amount of urine normal except for one increase to 72 ounces February 14, cloudy at six of twenty examinations, neutral at three, the slightest possible trace to a trace of albumin at twelve; sediment loaded with leucocytes at the first two examinations, many at ten more, present in smaller numbers at all other examinations except one, a catheter specimen, which showed on culture a moderate growth of colon-like bacilli and streptococci; rare to occasional red blood cells twice. Two other cultures from catheterized specimens showed a profuse growth of colon-like bacilli. Renal function 30 to 45 per cent. Blood: 15,600 to 8,800 leucocytes, 85 per cent. polynuclears, hemoglobin 70 per cent., reds 4,520,000, some achromia and anisocytosis, platelets normal or slightly decreased. Wassermann negative. Non-protein nitrogen 37 milligrams. Blood calcium 10.9 milligrams. Vital capacity 900 to 1300 cubic centimeters (12 tests).

X-ray showed the lung markings increased in prominence in both lung fields, most marked at the hilus. The cardiac shadow was markedly increased in size both to right and left. "The prominence of the lung markings is probably cardiac in origin." A film of the urinary tract was unsatisfactory because of motion and gas. Bones of the pelvis and some of the lumbar vertebrae appeared to be increased in density. There was slight thickening of the upper end of the right humerus. The teeth showed no definite foci. There was some irregularity of the external condyle of the left femur with two areas of diminished density in the condyle suggesting areas of bone destruction. The right knee joint and upper tibia showed no variation from the normal. There was visible calcification of the arteries of the leg. Plates of the pelvis and humerus February 26 confirmed the previous findings. A definite process in the bone characterized by increase of the cortex of the long bones, irregularity of outline and marked variation of density. The kidney outlines were indistinct on both sides. Films of both hands showed some osteoporosis. That of the left was quite marked. The joint surfaces did not appear abnormal. Some tufting of the terminal phalanx of the left index finger. Films of the skull showed very slight increase in density of the bone in the parietal region, possibly due to a similar process to that in the other bones.

The temperature for the first two weeks was 97° to 102.8° (rectal), afterwards 97.4° to 100°. The pulse was 60 to 102, the respiration 20 to 33 for the first five days, afterwards not remarkable.

Five days after admission examination showed the left border of dullness eleven centimeters from midsternum. There was a systolic murmur at the apex or over the aortic area. A few râles were heard at the right apex after cough and below the right clavicle. The signs at the bases had almost cleared up. Bone conduction was greater than air conduction in both ears, suggesting middle ear deafness. No shifting dullness was made out. The liver was not enlarged to percussion. In the right lower quadrant there was a tender mass which could be felt also from behind. There was no definite spasm over this area. It suggested kidney pathology and not appendix abscess. There was however definite tenderness in the right fornix as well. Over this mass were dilated venules, suggesting some chronic condition.

A surgical consultant thought there was no surgical condition present in the right lower quadrant. A skin consultant thought there was a mild cellulitis over the right shin and possibly a beginning phlebitis.

The patient did well, though the blood pressure continued high. March 1 cystoscopy was done. It showed no residual urine and no bladder pathology. A pyelogram showed the size and shape of the injected right kidney pelvis within normal limits. The upper and lower calices were somewhat irregular in outline. The examination was unsatisfactory because of motion. A urologist reported, "Very low right kidney with very slight pyonephrosis. Specimen from kidney is negative."

March 16 the patient was much better. The blood pressure was somewhat lower. The urinary picture had cleared up considerably. That day she was discharged to the Out-Patient Department.

Her husband gave the history of the next two months. For the first ten days after her discharge she followed orders as to rest and regulation of diet and felt better than she had for a long time. She then became unruly, and overtaxed herself until she could not climb a flight of stairs. Her husband said she had been actually demented, going about the house using vile language, pounding her head and threatening suicide, and showing vicious temper on denial of her wishes. May 8 she returned from a trip to Boston exhausted. The next day she was very dyspneic. A physician was called and treated her for cold.

May 12 she entered the hospital for the third time.

Upon examination she was poorly nourished, very dyspneic and acutely ill. The lungs showed dullness at the right base with increased voice and breath sounds, not bronchial. Moist râles throughout both lung fields, more marked at the bases. Heart enlarged to the left and the right. (Left border of dullness 12 centimeters from midsternum, 4 centimeters outside the midclavicular line; right border 4 centimeters to the right, supracardiac dullness 7 centimeters.) Heart sounds tic-tac, rhythm regular. A faint systolic murmur at the apex. Blood pressure 180/110 to 200/112. Examination of the abdomen unsatisfactory. It seemed somewhat distended. No fluid wave. No organs or masses made out. No definite spasm or tenderness. Pelvic and rectal examinations not done. Moderate pitting edema of both lower extremities and of the lower back and buttocks.

Amount of urine normal on the one occasion recorded, specific gravity 1.025, a large trace of albumin, 30 leucocytes, frequent clumps. Renal function 20 per cent. Blood: 24,800 to 39,400 leucocytes, 76 per cent. polynuclears, hemoglobin 80 per cent., reds 5,400,000, smear normal. Wassermann negative. Non-protein nitrogen 56.

The temperature was 98° to 103° (rectal), the pulse 89 to 100, the respiration 22 to 31.

The patient was put on the dangerous list the morning of admission. Two days later she developed pulmonary edema. When oxygen was given the cyanosis cleared somewhat. She became progressively worse, gasping for breath and cyanotic. That night she died.

Discussion

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

It is much easier to be sure that an aortic second sound is characteristic of hypertension after one has measured the blood pressure. I doubt whether one could be sure of it before that.

I suppose curettage was done, and that the "long operation" was a hysterectomy.

I do not see that we have had any evidence of disease of the kidneys.

We have a hypertension; we have fibroids apparently satisfactorily cared for by radium; we have recent circulatory failure if the history is correct; we have edema and orthopnea; and we have a psychosis the precise nature of which I should not like to state on the evidence before us.

NOTES ON THE PHYSICAL EXAMINATION

I should think those urinary sediments were not important.

Dr. George W. Holmes: The first plate is not particularly marked. There is a slight change and we attribute it to a certain amount of passive congestion from an enlarged and damaged heart. The note explains all that I can point out, that is, a very definitely increased heart shadow without anything particularly characteristic. The shadow of the ventricle is perhaps a little out of proportion to the shadow of the auricle. We should interpret that as an enlarged and dilated heart. There is perhaps a little increase of supracardiac dullness, but no more than we should expect with a heart of this size. I think the humerus shows the bone condition best. That of course means an increased deposit of lime salts in the bones. Such a condition is probably due to some irritant in the bones. A metastatic carcinoma might do such a thing. Or it might occur in some nutritional condition. The process in the condyle also might accompany metastases. I have gone a little further than this report and will say that I think the changes may be due to some condition like Paget's disease, some nutritional disturbance, or metastatic malignancy. The plates of the hands are particularly interesting from two or three angles. Paget's disease would be one of the conditions to consider, as with this disease the bones of the hands are frequently involved. In metastatic malignant disease the bones of the hands are practically never involved. So that if we find changes in the hands we should be more inclined to think it was Paget's disease or some nutritional disturbance. Often tufting of the terminal phalanges accompanies acromegalia, whereas this appears to be normal. The increase in density in the parietal region is possibly due to a process similar to that in the other bones. The lines running across the skull are the blood vessel markings and are a little large, a little more prominent than usual. In malignant tumors of the meninges the blood vessels are sometimes increased in size. The other changes are not of any particular importance.

Dr. Cabot: Why do you suppose they started looking at these bones? Here is a lady who comes in for her heart.

Dr. Holmes: I suspect that we found that in the X-ray plates we took either of the heart or of the pelvis. I imagine the X-ray Department was responsible for that.

Dr. Cabot: But in the end you do not put a great deal of stress on that?

Dr. Holmes: Yes. If there was any question of malignancy raised that might be of a good deal of importance.

Dr. Cabot: So that your message back to the clinicians would be, look hard for malignancy. I do not see that we have found any malignant disease so far. It does not look as if we were following your suggestions particularly. Perhaps they were not made as concretely as they ought to have been. All this time we have the cardiac picture and nothing else.

DIFFERENTIAL DIAGNOSIS

I do not see anything in the case as we get it here except hypertension and its results, with an unidentified psychosis, some fibroids which after treatment do not seem to be troubling her, and some very interesting bone lesions found by X-ray. I do not know that we shall ever know any more about those bone lesions. Certainly clinically I cannot give any suggestions. They are not due to syphilis, are they?

Dr. Holmes: They are not characteristic at all.

Dr. Cabot: Her mental symptoms are not characteristic, but might be due to dementia paralytica. There was nothing wrong with the pupils. They did not do a lumbar puncture. So it seems to me all we can say is that she had hypertension, which I believe is the first fact to appear. Then followed a hypertrophied and dilated and finally incompetent heart, passive congestion, arteriosclerosis, but so far as I see no definite evidence of kidney trouble. Nothing is said of pelvic examination toward the end. I take it the fibroids were not giving trouble. If it should turn out that they had undergone malignant degeneration I suppose it would be very interesting with regard to these bony changes that Dr. Holmes has described.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Hypertensive heart disease.
Myocardial insufficiency.
Paget's disease.

DR. RICHARD C. CABOT'S DIAGNOSIS

Hypertension.
Hypertrophy and dilatation of the heart.
Chronic passive congestion.
Arteriosclerosis.
Fibromata of the uterus.

ANATOMICAL DIAGNOSIS

1. *Primary fatal lesion*

Primary hypertension.

2. *Secondary or terminal lesions*

Arteriosclerosis.
Hypertrophy and dilatation of the heart.
Chronic passive congestion, general.
Serofibrinous pleuritis, left.
Slight hydropericardium.
Arteriosclerosis of the vessels of Willis.
Wet brain.
Slight ascites.
Infarcts of the lungs.
Distension of the large intestine.

3. *Historical landmarks*

Slight chronic pleuritis.
Small fibromata of the uterus.

Dr. Richardson: The anatomical conditions in this case are straightforward and clear enough. There was no permission to examine the bones mentioned.

We examined the brain and took out a little piece of the skull and no evidence of any definite lesions was found. From what the X-ray pictures showed in the bones mentioned I am inclined to think that Dr. Holmes's idea that it might be a manifestation of Paget's disease could very well be the right one. The brain weighed 1330 grams. That is a good-sized brain. The tissue showed no lesions, but was a little wet. There was some arteriosclerosis of the vessels of Willis and their branches, but no definite occlusions were found anywhere. The pituitary and pineal glands were negative.

The abdomen presented a mound-like distension in the region of the lower half, and the wall was rather tense, but on opening the peritoneal cavity this was found to be due to a distended colon. The peritoneum and appendix were negative.

The gastro-intestinal tract showed passive congestion in moderate amount, but otherwise was frankly negative. The mesenteric and retroperitoneal glands were negative.

In the right pleural cavity there was a small amount of thin pale clear fluid, in the left a collection of cloudy fluid and fibrin, and the visceral pleura on this side was coated with fibrinous material,—serofibrinous pleuritis on the left. In the lower lobe of each lung there was a small infarct. The lung tissue itself showed passive congestion, no other lesions. The bronchial glands were negative.

The pericardium contained about 200 cubic centimeters of thin pale clear fluid,—beginning hydropericardium in association with the beginning ascites. The heart weighed 530 grams. That is of course marked hypertrophy, with a wall on the right four millimeters in thickness, on the left fourteen millimeters. The columnae carneae were generally thick. There was slight dilatation of the left cavities, moderate of the right ventricle and marked of the right auricle. The cavities contained much jelly-like blood clot, more especially on the right, and so much in the right auricle that I weighed it. It weighed 100 grams,—a massive blood clot then in the right auricle, distending it markedly. The valves were frankly negative. The coronaries were free and capacious, but presented a moderate amount of fibrocalcareous sclerosis. The ascending aorta showed a moderate amount of fibrous sclerosis, but from that point on there was much fibrous and fibrocalcareous sclerosis, and there was a considerable amount in the great branches.

The liver showed well marked chronic passive congestion. The gall-bladder, pancreas and duct of Wirsung were negative. The spleen weighed 246 grams, slightly enlarged, and showed the dark brownish-red elastic tissue of passive congestion. The adrenals were negative.

The kidneys weighed 265 grams and showed nothing but chronic passive congestion. The pelves, ureters and bladder were negative. The uterus showed several very small fibromas,—other than that, negative. The tubes, ovaries, and vagina were negative.

Dr. Cabot: This case seems to me interesting because it is a very clean cut example of what we now call "primary" hypertension, the kind of case we should have called nephritis in old times. The kidneys were all right. The big heart came, I believe, in response to hypertension. Of course by "primary" we mean that we do not know the cause. On the total retrospect have we anything to say of those X-ray lesions?

Dr. Holmes: I think it may be some nutritional disturbance, not malignant. It may be Paget's not well developed. Or it may be some circulatory disturbance causing an unusual deposit of lime salts in the bones.

Dr. Cabot: Whether the psychosis had any direct relation to the hypertension I do not know. My best guess would be that it had not, because we see so many cases of hypertension without psychosis, and especially because there is not much in the arteries or brain to show disease.

CASE 13063

CAN RECTAL CANCER BE CURED WITH RADIUM?

Surgical Department

An Italian laborer thirty-five years old was referred from the Out-Patient Department July 7 complaining of pain in the lower right iliac fossa and throughout the lower abdomen and hemorrhage from the rectum.

The bleeding began a year before admission. The first time it occurred it continued four or five days and then disappeared for four weeks. There was no other symptom except moderate constipation. The bleeding continued at intervals until three months before admission. Since that time it had been continuous, especially at night. Associated with the increased hemorrhage was very severe tenesmus. July 4 he went to stool thirty-seven times, each time with only slight show of watery fecal material and some blood. Sometimes he bled at night unconsciously, but the amount lost was not great. The "show" was sticky mucous material mixed with blood. At times during the past three months there had been pain, sometimes quite severe, low in the right lower quadrant or at times general throughout the lower abdomen, relieved by defecation. There was some pain upon urination. The pain was more severe in the right side of the scrotum. During the past year the patient had lost 15 or 18 pounds. He was weak from the very light diet which he was obliged to take because meat or heavy food caused diarrhea. He had been dizzy and had swimming before his eyes recently, he thought because of weakness.

His family history is not important. His past history was negative except that his right arm had been atrophied since he was thirteen months old (?).

Clinical examination showed a thin man with evidence of recent loss of weight. The teeth were carious. There was moderate pyorrhea. There were enlarged inguinal glands. The right shoulder and upper arm showed atrophy of all the muscle groups. The forearm was normal. There was barrel chest. The entire chest, front and back, showed prolonged inspiratory and expiratory sibilant and sonorous râles, no dullness or abnormal fremitus. The heart showed no abnormalities. The blood pressure was 106/64. Rectal examination showed the sphincter and prostate normal. Well within reach of the finger was a firm, irregular, fixed annular mass. The finger could be passed through the lumen but the top of the growth could not be reached, nor could it be moved. The examining finger was covered with blood and mucus. The growth was not extremely tender.

Before operation the urine was cloudy, with a slight trace of albumin. One blood examination July 8 showed 9,200 leucocytes and 4,800,000 reds, another 12,200 leucocytes and 3,000,000 reds. The blood was otherwise normal in both.

Operation was done July 9. The following morning the temperature was 103°, the respiration 55, the pulse 130. There was some cyanosis and dyspnea. The left upper chest front and back showed dullness and diminished breath and voice sounds. The same area in front showed bronchial breathing and bronchial squeaks. There was a patch of hyperresonance with bronchial squeaks below the fourth right rib in the midclavicular line. The whole left chest moved less than the right and the left intercostal spaces were narrower than the right. The left border of cardiac dullness could not be made out. The right border was at the sternal margin. There was no sputum. Next morning the temperature and respiration were normal. There was some cough with purulent sputum. X-ray showed an apparent increase of the lung markings extended from the hiluses on both sides, particularly in the right lower chest. The periphery and apices were clear. There was some narrowing of the intercostal spaces in the left chest, possibly due to position. The lung markings were visible throughout both lung fields. There was nothing definitely characteristic of collapse.

During the next two days the patient coughed a great deal. By July 15 there was less cough, though there was still a temperature of 101° in the evening until July 21. July 22 the temperature was 99°. The patient felt well except for some abdominal pain. He was coughing much less and raising very little sputum.

A surgeon who was consulted as to the rectal condition reported: "Should the general condition improve sufficiently would advise radium treatment. Bleeding can be stopped and discharge lessened. Should pain or discomfort across the sacrum develop, deep X-ray therapy will usually give temporary relief."

July 23 the patient was discharged to the Huntington Hospital.

The patient arrived at the Huntington Hospital one month later for radium treatment. On physical examination there was apparently noted no change in the rectal growth or in his general physical condition. A specimen was taken and he was given radium treatment.

Four months later a note was made that he had failed considerably since his last visit and that he was having a good deal of pain across his back. On that day he received another radium treatment, and one week later had a series of high voltage X-ray treatments.

One month later, five months after his first treatment, there was no definite evidence of growth present. At the level of treament the lumen of the gut appeared to be less than one centimeter in diameter.

He came in for examination at intervals during the following two years, during which time no recurrence was noted. He took up his daily work as laborer and was able to work full time. He was described as looking and feeling very well. His colostomy was functioning well. In the last note it was observed that at a distance of about 10 centimeters from the anus the lumen was about three-quarters of a centimeter in diameter. Looking through this narrowed area with a proctoscope another four or five centimeters could be examined; the gut showed no evidence of recurrence.

DISCUSSION

BY WILLIAM MARTINDALE SHEDDEN, M.D.

Since this history was taken the patient has been interviewed again, and says that instead of bleeding for a year he bled altogether for seven years at intervals before entrance.

We have here a very interesting case, both from the point of view of diagnosis and from the point of view of treatment. On the surface it is apparently an open-and-shut case of carcinoma of the rectum, which from its description is probably inoperable. He is thirty-five years old, which is young for carcinoma, although carcinoma of the rectum does occur at that age. We more commonly see it in the years forty to sixty.

Pain in the lower right iliac fossa and lower abdomen combined with a growth in the rectum suggests perhaps a reflex pain due to interference with intestinal function, to toxemia, or to changes in the intestinal secretion. The urinary and scrotal pain are possibly due to pressure on the sacral plexus.

We have a triad to consider in making the diagnosis: tenesmus, bleeding, and a mass in the rectum. There are a number of diseases which will give tenesmus and rectal bleeding, among them bacillary or amebic dysentery or a colitis due to different agencies. But we have to consider in addition a mass. A mass of itself in the rectum may give tenesmus, both from the sensation of a foreign body it gives to the rectum and also because of the partial obstruction it causes with proctitis above it, or possibly from pressure on the sensory nerves. Another cause of tenesmus can be massive hemorrhage, and we see that he has bled considerably, although when he was having very marked tenesmus he was passing only a small amount of watery fecal material.

What other causes have we for rectal bleeding and tenesmus, plus a mass? The first would be ulceration due to various causes, such as *tuberculosis*, syphilis, or chancroid. Intestinal tuberculosis logically falls into several groups depending on the pathological picture: (1) Those that give a superficial ulceration. (2) Those that give deep ulceration; both of these two starting in the mucosa. (3) The rather rare type of intestinal tuberculosis known as hypertrophic or neoplastic tuberculosis, which originates in the submucosa. (4) A fibrous tuberculosis which causes the rectum to feel to the examining finger like a gas-pipe,—a firm round tube.

The first two, namely the ulcerative type, apparently do not concern us here, because those do not tend to form large masses. We should remember that here we have an annular, firm, irregular fixed growth. The neoplastic type of tuberculosis may give just this picture. It may not cause the patient any loss of color or weight, or constitutional symptoms of any sort. It usually is ushered in with alternating constipation and diarrhea, but may not give any symptoms at all until the growth has progressed far enough to give obstruction. It has not uncommonly been mistaken for inoperable carcinoma, and laparotomies have been done several times for supposed neoplasm. It is found most frequently in the large intestine, preferring the cecum and the rectum. One theory as to why intestinal tuberculosis flourishes more favorably in the large intestine is that the contents of the small intestine being fluid the bacteria are hurried through it, and secondly the acid in which they find themselves is not favorable to growth.

Chancroid ulceration is not annular and does not tend to develop a large mass.

The next logical diagnosis would be of course cancer, and in considering the differential diagnosis between intestinal neoplastic tuberculosis and cancer several points are to be considered. The first is the man's age. Tuberculosis appears generally between twenty and forty, cancer between forty and sixty. The onset of tuberculosis is very slow, that of cancer relatively *rapid*. It has been stated that if cancer of the rectum is not seen before four to six months have passed it is usually inoperable. Note that this man has had symptoms for a matter of years. Moderate pain is a rather frequent symptom of intestinal tuberculosis, but in the early stages of cancer of the rectum pain is not a prominent symptom. Bleeding tends to appear rather late in cancer of the rectum, and fairly early with neoplastic tuberculosis.

There are two or three other possible diagnoses to be considered. One is a rectal polyposis. This disease however generally shows numerous soft growths, very often pedunculated, while here we have described a firm, irregular, fixed annular mass. Possibly, however, secondary inflammation could transform the mass into a fixed irregular growth.

Diverticulum is another possible diagnosis. Diverticulum is uncommon in the rectum, tends to be single, and does not bleed unless there is erosion of the sac or unless the sac ruptures into a vessel.

Syphilis must be considered. He had two negative Wassermanns and had none of the stigmata of syphilis. These facts of course do not rule it out, but are against it.

He was sent into the hospital as a probable inoperable carcinoma of the rectum, the man who referred him feeling that he deserved at least an exploratory laparotomy with a possible chance for cure. His loss of 15-18 pounds could be ascribed to his light diet and his diarrhea. The dizziness and weakness could possibly be ascribed to malnutrition. His enlarged inguinal glands are possibly secondary to a rectal growth. We know that inflammatory lesions around the rectum and anus as well as neoplastic lesions may give us secondary changes in the inguinal glands. The atrophy of the right shoulder and upper forearm is probably due to an old polyomyelitis, as it came on thirteen months after birth. The barrel chest and the chest signs suggest emphysema. The low blood pressure is hard to explain unless on the basis or of malnutrition. Inasmuch as we have considered tuberculosis of the rectum we must not forget tuberculosis of the adrenals, which will give you a low blood pressure. The man's pressure after leaving the hospital, however, came up to normal, namely 145/90.

Let us for the moment consider this as cancer. Why is it inoperable? The points that suggest that it is inoperable are: (1) That it was fixed. (2) That the finger could not reach the top of it. In other words it was very extensive. (3) That possibly the inguinal glands contained cancer.

The variation of 1,800,000 red cells between the two red counts, both of which were done within a few hours, is hard to explain except by assuming that one or the other count was in error. He probably has moderate anemia.

PRE-OPERATIVE DIAGNOSIS

Carcinoma of the rectum.

OPERATION

Left lower rectus muscle splitting incision. Under ether examination the surgeon could feel by rectum two inches inside the anus a nodular mass. There seemed to be an opening in the middle and the hard infiltration around this seemed to be fixed to the cecum. The abomen was opened through the middle of the left rectus. The tumor of the rectum could then be felt arising from the lower bowel to an inch and a half above the floor of the posterior cul-de-sac. This formed a hard round tumor which felt much like a fibroid. There were extensive glandular enlargements in the mesentery. After starting a dissection of the perineum the surgeon found the disease had gone through the wall and there was edema below the peritoneum. He felt that it was impossible to do a radical excision, and therefore pulled up the loop of sigmoid and anchored it in position for a subsequent artificial anus. A specimen of the rectum and the gland were removed for examination.

PATHOLOGICAL REPORT

Microscopic examination of a lymph node and a fragment from the rectum showed no evidence of malignant disease.

FURTHER DISCUSSION

The post-operative chest signs suggest a possibly small pulmonary embolus with consequent small infarct, because it is rather early to have a full-blown bronchopneumonia, and also the signs are in the upper chest. Another possibility of course is massive collapse. The fact that the right border of the heart was at the sternal margin suggests that there was no massive collapse of the left lung, because with massive collapse the heart tends to be pushed towards the side of the collapse. The subsequent course of events shows that he did have bronchopneumonia, X-ray ruling out massive collapse and infarct.

By July 22 his bronchopneumonia was apparently quieting down. Chest X-ray showed narrowing of the intercostal spaces on the left. A recent X-ray has shown the same thing. Why, I do not know. It is not due in the second X-ray to his position; in other words he was not bending to the left.

July 23 he was discharged to the Huntington Hospital, where he appeared for radium treatment a month later.

I will just touch briefly on radiation therapy in this type of case. With radiation therapy so far we have little hope for cure except with very small circumscribed growths. In a large series of cases recently looked up at a nearby hospital it was found that of those cases which had been treated exclusively with radium and which had a definite pathological report of cancer of the rectum there were no three-year cures on record. Two cases were followed outside. One I believe has lived without clinical evidence of disease for three years, and another for nearly five.

Our case under discussion here was given radium treatment because it was felt that we could stop his bleeding, that we could probably prolong his life, possibly prevent the onset of rectal or sacral pain, and very probably relieve his tenesmus considerably.

Five months after entrance at the Huntington Hospital and one month after his second and last treatment there was found no evidence of growth, but there was a stricture at the level of treatment. No evidence of growth having appeared for the following two years, he is probably cured.

If this is carcinoma it is an entirely unlooked-for result. It was certainly not to be expected that a growth of such massive size would be cured by radium treatment.

I should like to ask Dr. McKittrick, who I think has been interested in this case, if he will say a few words.

Dr. Leland S. McKittrick: It so happened that I saw this patient here and then treated him at the Huntington Hospital. I know of no case that I have ever seen with cancer of the rectum as extensive as this in which a result as good as this has been obtained. That is, I think it just does not exist, and that instead of being a cure it ought to make one doubtful of the diagnosis.

Secondly, it is very rare to take a specimen from a rectal growth which is malignant and not get a definite report. Frequently it is difficult to get satisfactory specimens, and I have sent specimens not half the size of a little finger nail, and in almost every case a definite statement comes back. Yet here is a man who has two specimens taken, both reported as chronic inflammation.

I think that Dr. Shedden may perhaps have sounded too pessimistic about radium treatment. The cases that he mentions were all considered inoperable to begin with. That is the premise on which those cases were treated,—the premise that operation was too late and they were merely taken for palliation. The two better results that he mentions were surgically operable cases. That is, they were localized to one side of the bowel wall, without clinical evidence of infiltration around the outside of the wall, but both were inoperable because of the general condition of the patients. One was an old man of sixty-eight. The growth was high and it would have meant a combined operation with tremendous mortality. The other was an old lady of seventy-one or two, with a small local growth, and it seemed worthy of a trial. Both of them are free from symptoms at the present time and are doing very well.

So my feeling about radium is that it helps some of these hopeless people; that there is an occasional small, local growth that we can do better with by radium than by extensive operation. On this individual patient here there is nobody more surprised at the outcome than I am, because when I first saw him he was a nervous, high-strung Italian and I thought that without doubt he was on the road to death within six months. This is all quite a revelation to me. I think it means that he did not have cancer, and the report that Dr. Shedden has just read indicates that it is the type of growth that responds very well to radium and X-ray treatment. I presume there was a large inflammatory area around it, that the colostomy relieved the fecal stream from going by it, and whether or not the X-ray and radium did him any good I don't know, but apparently it did not do him any harm.

Dr. Shedden: I think it is true, as Dr. McKittrick says, that a large percentage of the cases (but not all, however) referred for radium are cases which are inoperable so far as their age or general condition goes, or because of the extent of the growth. As a rule our feeling has been, and I think Dr. McKittrick will agree, that any case which is in any way operable should be operated and not radiated. Several cases, however, refused operation, though operable, and are included in the group I mentioned. There are various modifications going on in the technique of radium, and it is possible that we may later offer these cases more. but at the present time we do not feel justified in treating any patient by radium when there is possibility of operation.

Dr. McKittrick: The diagnosis of cancer of the rectum can usually be made by anyone who can use his finger. But every now and again there is a queer variation. I do not know of anybody who can always diagnose this sort of case. I think what does happen after one has seen a lot of them is that one gets suspicious when one sees a variation from the usual picture, and if it is not true to type and is not characteristic of cancer of the rectum a specimen should be taken and reported on before any treatment is advised. That is the only way in which we shall not get caught for example on tuberculosis, which is the usual offender.

SUPPLEMENTARY PATHOLOGICAL REPORT, HUNTINGTON HOSPITAL

Specimen from rectum which was received two years earlier. A later microscopic examination shows appearances indicating that the specimen is an inflamed angiomatous polypoid growth.

DIAGNOSIS

Inflamed angiomatous rectal polyposis.

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FURTHER DEBAUCHMENT OF THE BOSTON HERALD

The *Boston Herald* of Wednesday, January 5, 1927, contains in its advertising columns an advertisement of a treatment for colds, headache, neuritis, lumbago, pain, neuralgia, toothache and rheumatism, which does not affect the heart; one advertising the "quick magic of calcium," which offers a beautiful complexion *this week,* a skin that fairly *sparkles,* and color that is all your *own.* The way to accomplish this magic is to give your system just a little *calcium!* In addition a third benefactor offers young folks with old stomachs a sweet stomach for twenty-five cents.

Page eighteen, however, a true burst of glory, is of great interest to the reader of the *Boston Herald,* for it is allocated in its entirety (but not from any motives of philanthropy) to a free treatment for deafness and head noise from nasal catarrh. We sufferers from these pathological stumbling blocks will receive a real thrill of pleasure at perceiving near the center of the page a large likeness of Dr. W. O. Coffee of Davenport, Iowa, the noted deafness specialist, "as he looks today after more than 45 years of active practice—he wants sufferers to try this home treatment free."

This page is given over to headline and "news" items, simulating the bona fide news columns of a reputable journal. One column contains sidelights on original treatment for deafness, head noises from nasal catarrh, containing testimonials from Sask., Canada, and Illinois; another proclaims that deafness is often due to catarrh of the air passages; a third allows the claim that 500,000 treated for catarrhal deafness is the doctor's record; a fourth announces that hundreds say they hear again after many years, and a fifth tells the world that catarrhal deafness is now successfully relieved by the Davenport doctor who has prepared 25,000 trial treatments which will be given away free to all who suffer from deafness, head noises or dullness of hearing due to nasal catarrh, or catarrh itself. The page closes with the touching appeal to "send in today and tell Dr. Coffee your trouble. If you are a sufferer from deafness or head noises from nasal catarrh or catarrhal conditions which may cause you to become deaf, tell him and he will send you a free treatment for this distressing condition. It is sent free—at no cost whatever. No reason to hesitate—SEND!"

The sufferer from deafness, head noises due to nasal catarrh, or catarrh itself who responds to this very generous offer promptly receives through the United States mail No. 1 powder, No. 48 Nasal Balm and No. 44 powder; a sheet of instructions for their use; a page of testimonials; another page of testimonials; the story of one very deaf man, and on the reverse the tale of Mrs. Norma McBride's remarkable restoration of hearing; the account of sixteen people who have used this treatment; a 30-page pamphlet on catarrhal deafness, head noises and catarrh, containing on the cover a more recent likeness of Dr. Coffee; one special order blank; one money refund agreement, and one letter from Dr. Coffee telling of his pleasure at being able to send a three days' course as an absolute gift, and deploring the fact that he cannot afford to send the instruments with this free treatment, and of course the instruments are necessary in order to get the best results. But cheer up! The treatment may be obtained for $10.00 a month, or three months' treatment for $25.00—hence the order blank. In a burst of confidence Dr. Coffee mentions the fact that he is treating patients in his office only two days a week. He hates to admit it but is growing older and must conserve his strength; consequently he will devote his energy to this home treatment, believing that thereby he can do the most good for the greatest number.

Letter No. 2 follows in three days, warning the patient that he cannot expect much, if any, improvement in the first few days, enlarging upon the full course, and trusting that the sufferer will go ahead and stop this disease before it gets too much into his system.

Letter No. 3 emanates from Davenport, Iowa, in 9 days more. Dr. Coffee appears, in this epistle, to be a little surprised at the lack of a prompt response to his generous offer, describes in greater detail the poisonous effects of catarrh, and intimates that one month's treatment may be enough—indeed, has been for over half of the people who have written him they were relieved.

In the light of this frank admission of advertising policy on the part of the *Herald*, it is interesting to note that in 1906 Mr. Samuel Hopkins Adams in his series of articles on The Great American Fraud, published in *Collier's*, exposed the activities and methods of one Dr. W. O. Coffee of Des Moines, Iowa, an accomplished long-distance specialist in disease of the eye, whose "original" book on this subject was chiefly noted for its misnamed illustrations, cribbed from an authentic text book by Haab, of Berlin. The Dr. Coffee of twenty years ago was a middle-aged gentleman, distinctly bald and sporting a goatee. The Dr. Coffee of *Herald* fame is somewhat older, according to his photographs, distinctly bald and smooth shaven. Whether or not these individuals are identical—and we mention the similarity of names, the common stamping ground of Iowa, and the allied specialties purely as a matter of interest—their methods are certainly equally offensive.

We realize that a medical journal with a professional circulation is limited in its power to arouse a general public sentiment. Nevertheless we must and shall continue to call attention to the *Herald's* flagrant disregard of all the laws of decency in its advertising pages. We realize that the editorial policies of the *Herald* which are consistent with the average, are probably dictated by a different set of individuals than those who control its advertising principles. It is apparent, however, that until these men see eye to eye and clearly, the *Herald* will continue to disgrace the very color of the ink in which it is printed.

THE CHIROPRACTIC HEARINGS

THE date of the hearings before the Committee on State Administration upon House bills 646 and 803 is February 16 at 10:30 a. m. The dates previously announced have been changed.

Both of these bills provide for registration by special boards of chiropractic examiners. The sole question at issue is that of the single standard of fitness to practice the healing art. No attempt is made by the opponents of these bills to restrict or dictate methods of healing, provided the practitioner knows what every physician must know of the human body and its workings.

The laws for the registration of physicians were enacted to protect the public health. They provide that the Board of Registration in Medicine shall certify to the fact that every registered physician has a certain minimum standard of fitness. Upon this depends the adequacy of our control of contagious disease, of our dealing with industrial accidents, of the conduct of our life, health, and accident insurance, of our vital statistics, and of many other matters of public concern.

A powerful attempt will doubtless be made to break down our existing safeguards, by what will be made to appear the addition of another safeguard.

If the physicians and those interested in matters of public and individual health really believe in maintaining a single standard for the practice of medicine in any form or under any name, they must take active steps to let their beliefs be known and be known in no uncertain manner.

THIS WEEK'S ISSUE

CONTAINS articles by the following authors:

LADD, WILLIAM E. A.B.; M.D. Harvard Medical School 1906; F.A.C.S. Instructor in Surgery Harvard Medical School and Harvard Graduate School of Medicine; Lecturer on Surgery, Tufts College Medical School. His subject is "Congenital Hypertrophic Pyloric Stenosis." Page 211. Address: 66 Commonwealth Avenue, Boston.

SIDEL, NATHAN. M.D. Harvard Medical School 1923; Assistant in Medicine Boston City Hospital; Teaching Assistant in Medicine Tufts College Medical School. Address: 483 Beacon Street, Boston. Associated with him is

DORWART, FREDERICK G. M.D. University of Virginia Medical School 1923. Recent House Physician Boston City Hospital. Address: Barnes Bldg., Muskogee, Okla. They write on "Quinidin Sulphate in Auricular Fibrillation." Page 216.

REID, WILLIAM D. A.B.; M.D. Harvard Medical School 1909. Instructor in Cardiology Boston University School of Medicine; Heart Consultant to Evans Memorial; Assistant Visiting Physician and Chief of Heart Clinic Massachusetts Homeopathic Hospital. His subject is: "Schema for Diagnosis of Heart Rhythm." Page 225. Address: 270 Commonwealth Avenue, Boston.

MOORE, HOWARD. M.D. Boston University School of Medicine 1905. F.A.C.S. Orthopedic Surgeon Newton Hospital; Consulting Orthopedic Surgeon Westboro State and Emerson Hospitals. Member Boston Orthopedic Club. Address: 520 Beacon Street, Boston. Associated with him is

WHEATLEY, FRANK E. A.B.; M.D. Tufts College Medical School 1914; Assistant Professor Roentgenology Tufts Medical School; Roentgenologist to the Milton and Goddard Hospitals. Address: 520 Beacon Street, Boston. They write on "Gastroptosis and Enteroptosis—A Clinical Consideration and Review." Page 226.

SCAMMAN, CLARENCE L. A.B.; M.D. Bowdoin Medical School 1912; C. P. H. Harvard, Technology School of Public Health; Director Division of Communicable Diseases Massachusetts Department of Public Health; Associate to P. H. Administration Harvard School of Public Health. His subject is "Contagious Diseases: The Variety of Administrative Methods for their Control." Page 232. Address: Room 546 State House, Boston.

The Massachusetts Medical Society

DIRECTORY OF 1927 TYPOGRAPHICAL ERRORS

PAGE 42. Cushman, Andrew Bernard, should be: South Dartmouth, (Dartmouth); Cushman, Ella Wylie, Boston, 464 Commonwealth Ave.; Cushing, Hayward Warren, Boston, 70 Commonwealth Ave.

THE COUNCIL MEETING

THE stated meeting of the Council was held as called for February 2, at the Boston Medical Library a half hour earlier than usual in order to give time to the discussions of several important matters about which differences of opinion have been expressed. The routine matters of membership and finance, as recommended by the Committee, were adopted without much discussion except the amount called for by the Committee of Arrangements to carry out the plans for the annual meeting. The estimated expense for the three days previously voted by the Council is about sixty-one hundred dollars. The Chairman of the Committee of Arrangments gave many of the details which included special entertainment for visiting ladies at the Brookline Country Club, transportation, the "Pops," lunches, and the annual dinner. The Chairman of the Committee on Membership and Finance approved this expenditure after explaining that the amount is much larger than has heretofore been appropriated, and although funds are available for this year, many repetitions would necessitate increasing the annual dues; this last prognosis was the text on which some objection was based and arguments to cut down expenses were presented. Some thought that the third day is unwise, some that those who participate in luncheons and the dinner should pay for such refreshments and one member suggested reducing the amount to be expended to twenty-five hundred dollars. The Chairman of the Committee, while ready to obey the mandates of the Council, promised to provide a meeting which will be the best ever held in the history of the society, for in addition to the social features, the hospitals will make a great effort to give to the members very instructive programs. There was no apparent unanimity in the suggested economics, so that the matter was finally left as recommended.

The Committee on Legislation presented the important matters before the Legislature and asked for support. The report was vigorously applauded. Similar reports in previous years have been applauded and approved, but this momentary ebullition has never seemed to demonstrate intensive activity on the part of many of the members. We hope that coöperation will be more in evidence this year.

The President called attention to the many years of devotion to the vaccination problem by Dr. S. B. Woodward and urged the members to come forward in this campaign. Dr. Woodward's name also was enthusiastically applauded. We hope that his efforts will receive support which will be more effective than a display of sentiment.

The recommendation for the appointment of delegates to the New England Medical Council was indorsed, but the other recommendation that a special defense committee be created to help those who are being, or will be sued, was not endorsed. The majority preferred to delay action pending further study by the Committee on Ethics and Discipline.

The proposal to authorize the Committee of Nine, in charge of the JOURNAL, to enter into arrangements with the other New England State Medical Societies for the publication of their transactions was approved.

The long anticipated discussion on the problems of medical education based on the reports and recommendations of the Committee on Medical Education and Medical Diplomas was brief. Both sides were groomed for the contest. Those on the side lines expected a battle royal and were looking for a display of forensic ability but orations were promptly squelched by a motion to lay the matter on the table. The opinion has been expressed that the objects of the Committee had been accomplished in that the Faculties of the Medical Schools had been made aware of the existence of a very real dissatisfaction with certain tendencies in medical education.

These brief comments should not be construed as a report of the meeting, for they are written with the hope that the official Proceedings of the Council which is being prepared by the Secretary and will be published soon, will be studied by the fellows. The Proceedings stand as a history of the Council.

In order to avoid misunderstanding, The managing Editor of the Journal would like to call the attention of members to the fact that Treasurers of the District Societies have sent out notices of the annual dues assessed by the Massachusetts Medical Society. New members, and occasionally others, may fail to understand that it is a requirement of the Society that sending the Journal to those who have failed to pay their dues be omitted after March 1.

There is another very important reason for prompt payment of dues. The District Treasurers have a certain proportion of the amount collected before March 1 returned to the District Society, and every District Society can use this refund to good advantage in carrying on its own activities. Every member ought to recognize the importance of sustaining the work of the district through prompt payment of the annual dues.

LEGISLATIVE NOTES

On reaching the State House the representatives of the Massachusetts Medical Society found that the hearing on H. Bill 803 had been postponed to February 16. At this time both bills designed to regulate and license chiropractors will be heard.

The bill providing for pasteurization of milk was considered February third. The objections were voiced by representatives of the farmers on the ground that compulsory pasteurization as defined in the bill would ruin the small producers of milk.

The hearing on the recommendation of the Governor relative to the qualificatons of the Medical Schools will be heard February 23, and not February 21, as first announced in the Bulletin of the Legislature.

RECENT DEATHS

CALDARONE—Dr. Angelo Caldarone, a Fellow of the Massachusetts Medical Society, died at his home in Lawrence, January 29, 1927, at the age of 32.

He was a native of Providence, R. I., attended Brown University and Tufts College Medical School, receiving his M.D. at the latter in 1921. The next year he settled in Lawrence and joined the State medical society, first acting as house officer at the Lawrence General Hospital.

He is survived by his widow, Laura Caldarone.

POORE—The death has been reported as of January 19, 1927, at his home in Santa Barbara, Calif., of Dr. John Robinson Poore, formerly of Waterbury, Conn.

Dr. Poore, the eldest son of John Augustus and the late Harriet Proctor Low Poore, of Boston, was born in Roxbury, Mass., June 3, 1864. He was a graduate of Harvard Medical School in the class of 1895 and a house officer at Boston Lying-in Hospital. He settled in Waterbury, was a member of the Waterbury Medical Association and of the Connecticut Medical Society and was surgeon to the police and fire departments of the city of Waterbury. Of late years he had retired from practice and made his home in Santa Barbara.

CORRESPONDENCE

NOTES ON NATIONAL AFFAIRS

(From Our Special Correspondent)

Action by the Senate on the maternity and infancy bill, and debate and introduction of amendments on the milk importation measure were two outstanding legislative events of the first two weeks in January.

SENATE PASSES MATERNITY AND INFANCY BILL

After a great deal of debate, some of it rather acrimonious, the United States Senate on January 13 passed the bill (H. R. 7555) for the extension of the Federal Maternity and Infancy Act for a two-year period, but with an amendment which endeavors to put an end to this measure after the expiration of the two years. Thus, the proponents of this plan win a partial victory, and the opponents win a somewhat more signal one, in that this law would cease to be of effect after June 30, 1929. That is, it will if the House agrees to the amendment of the Senate. Since the bill was passed by the House last April, it now goes to conference and each chamber must agree to the report of the conference committee before the measure finally becomes a law.

On January 19 the House agreed to the Senate amendment on the extension of the Federal Maternity and Infancy Act.

The amendment adopted by the Senate was stated by Senator Sheppard, the author of the original law, to be a compromise. With this understanding the bill was passed, the intention being that the maternity and infancy act should be automatically repealed on the expiration of the two-year extension granted. A Congress cannot, however, bind a future Congress, and there is some question as to the validity of any such action. It is possible that, even if the House concurs in this action, the fight may be resumed in 1929.

The debate on the measure, sandwiched in between discussions on the Nicaraguan policy and the denaturing of industrial alcohol, was interesting and significant. Senator Bayard of Delaware was the leader in the attack, his speech appearing in the *Congressional Record* for January 11 (Appendix, page 1460). Among other things, he quoted telegrams from the New Hampshire Medical Society condemning the maternity and infancy act, and he also replied at length to the statement of Miss Abbott, the chief of the Children's Bureau, which was made in answer to a petition of the Woman Patriot Publishing Company, previously inserted in the *Record*. Among others who spoke against the measure were Senator Cole Blease of South Carolina, whose oration, largely autobiographical, was concerned with States' rights; Senator Bruce of Maryland on the same subject; Senator King of Utah, and Senator Bingham of Connecticut. The amended bill was finally adopted at an evening session, without a record vote, that is, by voice (*viva voce*) and not by officially recording the yeas and nays.

AMENDMENTS TO MILK IMPORTATION BILL

The bill (H. R. 11768) to regulate the importation of milk into the United States, a measure aimed primarily at Canadian milk, came up in the Senate on January 4, but was passed over on objection by Senator Walsh of Massachusetts. This bill was passed by the House at the last session, and has been actively supported in the Senate by Senators Lenroot and Copeland. On January 11 and 12 Mr. Walsh had placed in the *Record* a number of amendments which he proposes for this bill. It will be recalled that Massachusetts and New England dairy interests registered vigorous opposition to this bill when hearings were held on it last spring.

The bill requires that shippers of milk to be imported into the United States must have a permit issued by the Department of Agriculture, and definite sanitary standards, similar to those in New York State, are set forth. The amendments proposed by Mr. Walsh provide for temporary permits pending the setting up of the necessary machinery for considering applications for permits, for prohibition of summary action when only one sample is found below standard, and for a number of minor miscellaneous matters. Mr. Lenroot has also introduced an amendment which would waive the requirements in the case of milk imported for condensing or pasteurization within 20 miles of place of production. Although Dr. Copeland has stated in the Senate that the city of New York wants this bill, the Health Commissioner of that city, Dr. Louis I. Harris, sent telegrams on January 14 to various Senators to the effect that passage of the bill would create a milk famine in his metropolis. His position, as defined to the writer recently, is that such a law would not only deprive New York City of a certain quantity of desirable milk, but would cause New England dealers, unable to secure Canadian milk, to cut into the supply which would normally be sent to New York. This is, therefore, a public health and economic matter of some consequence, though the sanitary provisions of this bill seem entirely reasonable..

NEW LEGISLATION OF IMPORTANCE

A new and novel method of attack on narcotic drugs is proposed in a bill introduced in the Senate by Senator Copeland (S. 5204). A United States college of narcotic education would be established, with a student body consisting of two candidates appointed by each member of Congress and 20 by the President. There would be such laboratories, libraries, instructors, and other items as needed. This bill is said to have been inspired by the Narcotic Education Association, of which Mr. Richard P. Hobson is the leading spirit.

A congress on military medicine and pharmacy is to be held in Warsaw, Poland, late in 1927, and the House has favorably reported a joint resolution (H. J. Res. 328) for the payment of $5000 for the expenses of delegates from the United States. This proposed appropriation received the sanction of the Director of the Budget.

Various amendments to the national prohibition act have, as usual, been introduced, with several of them dealing with the so-called poisoning of industrial alcohol. On January 11 the Secretary of the Treasury sent to the Senate a communication (S. Doc. No. 195) defending the denaturants now used and enclosing a report from the Health Commissioner of New York to the effect that most of the deaths from alcohol in his jurisdiction were caused by excessive use of this fluid and not by the adulterants placed in industrial supplies by the government.

A copy of the report on the national government and public health, recently reviewed in this JOURNAL, has been officially transmitted to the President for his consideration.

JAMES A. TOBEY.

CASES REPORTED TO THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH FOR THE WEEK ENDING JANUARY 22, 1927

Chickenpox	339	Gonorrhea	93
Diphtheria	99	Dog-bite requiring anti-rabic treatment	6
Encephalitis lethargica	1	Influenza	17
German measles	17		
Measles	158	Syphilis	40
Mumps	237	Trachoma	1
Ophthalmia neonatorum	21	Tuberculosis, pulmonary	90
Pneumonia, lobar	133	Tuberculosis, other forms	8
Scarlet fever	495	Tuberculosis, hilum	5
Septic sore throat	7	Typhoid fever	10
Suppurative conjunctivitis	7	Whooping cough	132

CASES REPORTED FOR THE WEEK ENDING JANUARY 29, 1927

Anterior poliomyelitis	1	Ophthalmia neonatorum	22
Chickenpox	417	Pellagra	1
Diphtheria	108	Pneumonia, lobar	110
Dog-bite requiring anti-rabic treatment	7	Scarlet fever	598
		Septic sore throat	7
Encephalitis lethargica	2	Suppurative conjunctivitis	10
		Syphilis	30
Epidemic cerebrospinal meningitis	1	Tuberculosis, pulmonary	97
German measles	12	Tuberculosis, other forms	16
Gonorrhea	73		
Influenza	27	Tuberculosis, hilum	10
Measles	170	Typhoid fever	4
Mumps	354	Whooping cough	191

CONNECTICUT DEPARTMENT OF HEALTH

MORBIDITY REPORT FOR THE WEEK ENDING JANUARY 22, 1927

Diphtheria	38	Chickenpox	122
Last week	31	Conjunctivitis, infectious	2
Diphtheria bacilli carriers	5	German measles	4
Scarlet fever	111	Influenza	28
Last week	101	Mumps	28
Typhoid fever	2	Pneumonia, lobar	57
Last week	1	Septic sore throat	2
Measles	49		
Last week	17	Tuberculosis, pulmonary	25
Whooping cough	58		
Last week	47	Tuberculosis, other forms	4
Bronchopneumonia	52	Gonorrhea	11
Cerebrospinal meningitis	1	Syphilis	21

MORBIDITY REPORT FOR THE WEEK ENDING JANUARY 29, 1927

Diphtheria	29	Encephalitis, epidemic	1
Last week	38	German measles	4
Diphtheria bacilli carriers	12	Influenza	31
		Mumps	32
Scarlet fever	104	Paratyphoid fever	1
Last week	111	Pneumonia, lobar	52
Typhoid fever	6	Poliomyelitis	1
Last week	2	Septic sore throat	3
Measles	48		
Last week	49	Tuberculosis, pulmonary	30
Whooping cough	61		
Last week	58	Tuberculosis, other forms	6
Bronchopneumonia	26	Gonorrhea	21
Chickenpox	113	Syphilis	30

NOTICES

REMOVAL OF THE OFFICE OF DR. ROBERT H. NICHOLS

DR. ROBERT H. NICHOLS has moved his office from 20 Beacon Street to 11 Newbury Street, Boston, Mass.

THE PRICE TO BE PAID FOR BLOOD TRANSFUSIONS

The House of Congress has passed a bill H. R. No. 16023, introduced by Representative James of Michigan, which sets a price of not exceeding fifty dollars to persons in the Government service submitting to transfusion.

We have seen no report of concurrent action by the Senate, but this is interesting as showing the opinions of members of the House as to the proper price for transfusions.

BOSTON HEALTH LEAGUE, INC.

Program of Future Meetings—Season 1927

March—Annual dinner meeting. (Time, place and speaker to be announced.)

April 13—Dr. Douglas Thom, Director of the Division of Mental Hygiene, State House, Boston: Mental Health of the Child.

May 4—Dr. Richard Smith, Assistant Professor of Child Hygiene, Harvard School of Public Health: The Next Step in the Reduction of Infant Mortality.

June 8—Dr. George H. Bigelow, Commissioner of Public Health for Massachusetts: The State Cancer Program.

Meetings in April, May and June to be held in Room 500, 14 Beacon Street, at 3 P. M.

REPORTS AND NOTICES OF MEETINGS

MEETING OF CONNECTICUT PUBLIC HEALTH ASSOCIATION

On February 10 the Connecticut Public Health Association will hold its winter meeting in Hartford at Hotel Bond at 11 A. M.

The interest of the morning session will center around a discussion of public health legislation.

The afternoon session will be an open meeting to discuss the problem of the health menace from the construction and occupation of buildings in locations where a safe water supply and sewage disposal are not provided.

THE BOSTON DISPENSARY CLINICAL STAFF

The Boston Dispensary clinical staff held their annual dinner at the University Club on Thursday evening, January 27th.

Over 100 physicians and guests were present. Major Edwin C. Cooper, D.S.C., guest of the evening, who was introduced by General Edwin A. Logan, gave a graphic lecture on "Going into Battle" with the A. E. F., which was illustrated with 6000 feet of war film made for the Government. Major Cooper emphasised the work of the medical corps at the front.

John D. Adams, M.D., was chairman of the entertainment committee and toast master and the Board of Managers of the Dispensary was represented by President Arthur G. Rotch, Secretary Robert W. Maynard and Director Frank E. Wing.

At the busness meeting held before the dinner, Maynard Ladd, M.D., was elected president, Augustus Riley, M.D., vice-president and Benjamin E. Wood, M.D., secretary-treasurer for the ensuing year.

THE LYNN MEDICAL FRATERNITY

The Lynn Medical Fraternity held its annual meeting and dinner at Huntt's Grill, January 27, 1927, at six o'clock p. m. The following officers were elected for 1927: President, Edward Scott O'Keefe, M.D.; Vice-President, E. P. Garipay, M.D.; Sec.-Treas., W. F. Lemaire, M.D.; Executive Com., Lyman Asa Jones, M.D., George C. Parcher, M.D., E. M. Dolloff, M.D., Charles L. Hoitt, M.D.

The speaker of the evening was Dr. Charles E. Mongan, of Somerville, whose subject was "Maternal Death Statistics."

Wm. T. Hopkins, Reporter.

MASSACHUSETTS GENERAL HOSPITAL

CLINICAL MEETING

A clinical meeting of the Staff of the Massachusetts General Hospital will be held in the Administration Building, Fruit Street, on Thursday, February 10, at 8:15 P. M.

PROGRAM

1. Presentation of Cases.
2. Uterine Bleeding—a preliminary report—Dr. J. V. Meigs.
3. Some Observations on Exophthalmic Goitre—Dr. James H. Means.

A cordial invitation to attend these meetings is extended to physicians, medical students, nurses and social workers.

Committee on Hospital Meetings.

OBSTETRICAL SOCIETY AND NEW ENGLAND PEDIATRIC MEETING

Tuesday, February 15, at 8:15 at the Boston Medical Library, there will be a combined meeting of the New England Pediatric Society and the Boston Obstetrical Society. Dr. George L. Streeter, the Director of the Department of Carnegie Institute, of Baltimore, will be the speaker. His subject will be "Intra Uterine Amputations."

Physicians and medical students are invited. There will be light refreshments.

De Los J. Bristol, M.D.,
Secretary of the Boston Obstetrical Society.
Thomas H. Lanman, M.D.,
Secretary of the New England Pediatric Society.

WINTER TRAINING SCHOOL FOR RESERVE MEDICAL OFFICERS

The next meeting in the Winter Training Schedule for Reserve Medical Department Officers of Boston and vicinity will be held at the Army and Navy Club, Hotel Bellevue, Beacon Street, Boston, Mass., on February 9, 1927, at 8:00 P. M.

At this meeting Captain H. N. Dean, M. A. C., will take up Rations and Subsistence while on duty and sick in hospital and Colonel Alexander S. Begg, Med.-Res., and Lieut. Colonel Henry M. Emmons, Med.-Res., will discuss Medical Regiments. All these officers are well versed in their subjects.

This will be one of the best meetings; let every officer try and attend.

SOCIETY MEETINGS

DISTRICT MEDICAL SOCIETIES

Essex North District Medical Society

Wednesday, May 4, 1927—Annual meeting. Russell Hall Young Men's Christian Association Building, 40 Lawrence Street Lawrence.

Thursday, May 5, 1927—Censors meet for examination of candidates at Hotel Bartlett, 95 Main Street, Haverhill, at 2 P. M.

Essex South District Medical Society

Wednesday, March 2, 1927—Lynn Hospital. Clinic, 5 P. M.; supper, 7 P. M. Dr. George Minot, "Pernicious Anemia, with Special Reference to Liver Diet." Discussion by Drs. Sargent of Salem and Reynolds of Danvers, ten minutes each.

Wednesday, April 6, 1927—Danvers State Hospital. Clinic, 5 P. M. Dr. Allan W. Rowe, Chief of Research Service at Evans Memorial, "The Differential Diagnosis of Endocrine Disorders." Followed by dinner. Discussion by Drs. Wood of Hathorne and Kline of Beverly, ten minutes each.

Thursday, May 5, 1927—Censors meet for examination of candidates at the Salem Hospital, 3:30 P. M.

Wednesday, May 11, 1927—Annual meeting. The Tavern Gloucester. Speaker and subject to be announced later.

Norfolk District Medical Society

Below are the proposed meetings of the Norfolk District for the remainder of the year. Minor changes may be made in case of necessity.

March 1, 1927—Roxbury Masonic Temple, 8:15 P. M. Dr Robert B. Greenough. To be devoted to a talk on cancer, with a résumé of the results of colloidal lead treatment.

March 29, 1927—Roxbury Masonic Temple, 8:15 P. M. Drs F. S. Newell and F. J. Irving, "The Modern Treatment of the Eclampsias and Toxaemias of Pregnancy." If time permits—"The Modern Methods of Handling Prospective Caesarean Cases."

May 10, 1927—Annual meeting. Details of meeting to be announced.

Suffolk District Medical Society

Meetings of the Suffolk District Medical Society and the Boston Medical Library will be held at the Boston Medical Library 8 The Fenway, Boston, at 8:15 P. M., as follows:

February 23, 1927—Surgical Section. "Clinic on Neurological Cases at the Peter Bent Brigham Hospital," Dr. Harvey Cushing

March 30, 1927—Medical Section. Subject and speaker to be announced later.

April 27, 1927—Annual meeting. Election of officers. "Medical Education in the Orient and Occident," Dr. David L. Edsall Dean, Harvard Medical School.

***Notices of meetings* must reach the JOURNAL office on the Friday preceding the date of issue in which they are to appear**

BOOK REVIEWS

The Practice of Medicine. By A. A. STEVENS, Professor of Applied Therapeutics, University of Pennsylvania. 1197 pages. W. B. Saunders Co., Philadelphia, 1926.

The second edition of Stevens' Practice of Medicine appears with certain chapters rewritten, others revised and some subjects are discussed for the first time. He has rewritten the chapters on vascular syphilis, diabetes mellitus, insulin treatment of diabetes, acidosis and alkalosis. Some revisions have been made in chapters concerning diseases of the gastro-intestinal, cardiovascular, neurological and hemapoietic systems. Some subjects appear for the first time, such as coronary occlusion, Ayerza's disease, vasomotor rhinitis, the Dick test, meningococcus bacteriema and others.

The book is evidently written for the medical student and the busy general practitioner to serve as a ready reference covering the field of internal medicine. It appears in one volume and must necessarily be concise, giving only the most commonly accepted ideas of the pathology, diagnosis, and treatment of each disease.

He gives references to some of the more important work on certain diseases but this is of necessity not complete.

The book is well written, very readable and necessarily brief. It will serve as a reference book for the student and practitioner, but it is not complete enough for the student or physician interested in a detailed discussion of any one disease.

The Normal Child and How to Keep It Normal in Mind and Morals. By B. SACHS, M.D. pp. 111. Published by Paul B. Hoeber, Inc., New York, 1926. Price $1.50.

Dr. Bernard Sachs has just published a volume upon "The Normal Child and How to Keep it Normal in Mind and Morals" which may well be the first big gun of a reaction against the extreme attention paid to children by a variety of "mental experts." The author lays down simple rules most of which are valid enough. Then he proceeds zealously to indulge in a battle royal, hitting out at almost anyone. The Freudians are his chief enemies, but psychometric psychologists, behaviorists and the new school of teachers all get banged about.

The reviewer had a cheerful hour at the combat, but it seems, on thinking it over, that reaction of Dr. Sachs' type is likely to be just as bad as overestimation of psychiatric progress. It would be a great pity if the careful work of many clinics, with good types of which Boston is particularly well supplied, should be discredited because Dr. Sachs believes psychoanalysis is very much to be hated. The reviewer believes that psychiatrists, particularly those in control of certain propaganda work, have laid themselves open to just this sort of attack. Dr. Sachs is no more dogmatic than some of those he attacks. The conscientious doctor ought to be able to discriminate between the reckless propagandist and the reliable working psychiatrist. It is certainly to be hoped that excessive zeal can be checked without seriously injuring valid psychiatric work.